POST-DISASTER MOBILITIES: EXPLORING HOUSEHOLD RELOCATION AFTER THE CANTERBURY EARTHQUAKES

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SIMON BERNARD DICKINSON

DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF CANTERBURY
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Abstract

During 2010 and 2011, a series of major earthquakes caused widespread damage in the city of Christchurch, New Zealand. The magnitude 6.3 quake in February 2011 caused 185 fatalities. In the ensuing months, the government progressively zoned residential land in Christchurch on the basis of its suitability for future occupation (considering damage from these quakes and future earthquake risk). Over 6,000 homes were placed in the 'red-zone', meaning that property owners were forced to sell their land to the Crown. This study analysed patterns of residential mobility amongst thirty-one red-zone households from the suburb of Southshore, Christchurch. Drawing on interviews and surveys, the research traced their experience from the zoning announcement until they had moved to a new residence.

The research distinguished between short (before the zoning announcement) and long term (post the red zone 'deadline') forms of household relocation. The majority of households in the study were highly resistant to short term movement. Amongst those which did relocate before the zoning decision, the desire to maintain a valued social connection with a person outside of the earthquake environment was often an important factor. Some households also moved out of perceived necessity (e.g. due to lack of power or water).

In terms of long-term relocation, concepts of affordability and safety were much more highly valued by the sample when purchasing post-quake property. This resulted in a distinct patterning of post-quake housing location choices. Perceived control over the moving process, relationship with government organisations and insurance companies, and time spent in the red-zone before moving all heavily influenced participants' disaster experience. Contrary to previous studies, households in this study recorded higher levels of subjective well-being after relocating.

The study proposed a typology of movers in the Christchurch post-disaster environment. Four mobility behaviours, or types, are identified: the Committed Stayers (CSs), the Environment Re-Creators (ERCs), the Resigned Acceptors (RAs), and the Opportunistic Movers (OMs). The CSs were defined by their immobility rather than their relocation aspirations, whilst the ERCs attempted to recreate or retain aspects of Southshore through their mobility. The RAs expressed a form of apathy towards the post-quake environment, whereas, on the other hand, the OMs moved relative to pre-earthquake plans, or opportunities that arose from the earthquake itself.

Possibilities for further research include examining household adaptability to new residential environments and tracking further mobility patterns in the years following relocation from the red-zone.

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Chapter 1: Introduction

> The event itself … the earthquake … it seems so long ago now, you know? But that's the thing…the earthquake was only the first catastrophe. What happened afterwards … the way it was handled, the way information was passed down, the inability of government to communicate with the people … yeah … that's another disaster in itself. People come up to me, you know, and say 'You're from Southshore? Poor you, you would have felt the earthquakes in a big way out there' … and I'm thinking to myself 'F*** the earthquakes, they were almost two years ago, but now I'm being kicked off my land and I don't have a bloody choice about it'. It's gut-wrenching.
>
> RICHARD, SOUTHSHORE RESIDENT OF 10 YEARS, RED-ZONE

> That's the thing about this whole zoning system … I'm a winner in this whole situation. I'm getting kicked off my land, I'm losing my home … I'm losing over $200,000 and not getting the value of my house … yet in the context of what's happened here, I'm a winner, you know? Ah … don't ask me where I'm going to find a house, where I'm going to move to … how they expect me to find a house when they won't even pay me for the house I have here ... but you know what? At the end of the day I have a way out of here, I have the freedom to leave this place and never come back … and in this whole situation, that makes me a winner.
>
> CAMERON, SOUTHSHORE RESIDENT OF 26 YEARS, RED-ZONE

Research Background

The above statements were made by two residents in the city of Christchurch, New Zealand, after a sequence of earthquakes in 2010 and 2011. After the introduction of a government imposed zoning system, both are being forcibly relocated out of an area deemed unsafe for occupation for 25 years. The statements reflect two of the views held by many of the residents who have been dealt the same fate; those who wish to remain in a place they have established as their home, and those who are happy they have been given the 'freedom' to move. While many might view the idea of forced

relocation as a negative phenomenon, the Christchurch zoning system has highlighted the different ways in which government decision making after disasters can be interpreted.

In many ways Richard and Cameron's statements reveal the central research focus discussed in this thesis: the influence of factors that determine the mobility of those who have been forced to relocate as a result of natural disaster. This study concentrates specifically on the experiences of those who have been 'red-zoned' as a result of the Canterbury earthquakes of 2010 and 2011 and explores residential mobility patterns as participants move from their condemned properties. The thesis attempts to explore the relocation experience and understand both the actors and decision making processes involved in relocating in such an environment.

New Zealand is not unfamiliar to extreme natural events. From the 1931 Napier earthquake, to the Ruapehu lahar in 1953, it has always been acknowledged that New Zealand has been susceptible to extreme natural events (IPENZ, 2012). Given its precarious position on the boundary of the Pacific and Australian plates, an earthquake of a significant magnitude has always been projected (Zuckerman, 2011). However, it was with a sense of unexpectedness when a magnitude 7.1 quake struck Christchurch on September the 4th, 2010. This was more tragically followed by a 6.3 magnitude quake on the 22nd February, 2011, which resulted in the loss of 185 lives. The February quake was the third largest insurable natural disaster the world has ever seen (Berryman, 2012) and the recovery period is expected to take between 50 and 100 years (Satherley, 2013).

In view of the damage caused by the earthquakes the central government, through the newly created Canterbury Earthquake Recovery Authority (CERA), zoned land and buildings in regards to the risk it posed (an in-depth explanation of this process can be found in Chapter 3 of this thesis). A residential 'red-zone' was subsequently established; an area where property owners were required to sell their property and/or land to the Crown. Tensions and frustrations emerged (for example see Killick, 2012; Wright, 2012) as residents of red-zone areas experienced a myriad of factors that influenced their ability to move, including some waiting over a year to hear the zoning outcome. As

the decisions have emerged many have argued as to the validity of the government's claim that their land is unsafe (Cairns, 2012). Whilst a number of third-sector voluntary organisations have leapt to the aid of those affected, many appear to be left out of pocket and are expected to find properties in what is predictably a difficult market (McDonald, 2013). A number of these experiences will be shared within this thesis.

Attempts to understand relocation in any context can be approached from a number of angles. Early migration literature focused on the notion that people move relative to opportunity. Perhaps most synonymous with this idea was British demographer E.G Ravenstein, who noted that the major cause for residential migration was the opportunity for economic 'betterment' (Ravenstein 1885, 1889). Later, versions of the 'push versus pull' model began to emerge (i.e. Wilson, 1967), which addressed the idea that residential migration is the result of a complex interplay between 'push' factors from one location, and 'pull' from the other. Everett Lee's paper *A Theory of Migration* (1966) built on this by stating that migration patterns are determined by both wider societal and cultural influences and also more personal characteristics, such as social connections and experiences/perceptions of an area.

The concept of forced relocation adds a specific contextual aspect to these ideas, and requires development of this concept of 'migration'. The link between a person's contextual environment and relocation has been of particular recent interest to sociologists (Bruch & Mare, 2012), psychologists (Nettle, 2003; Carr, 2010), urban geographers (Fan, 2005), transport geographers (Sermons & Koppelman, 2001), political scientists (Hiscox, 2002), the public health sector (MacPherson, Gushulak & Macdonald, 2007), economists (Facchini & Willmann, 2005) and all levels of government (for example, European Federation of Public Service Unions, 2012). This interest has led to the introduction of a new term; mobility. The new mobilities paradigm encompasses and describes the movement of people, the flow of ideas, culture, information and material goods to different points in space (Sheller & Urry, 2006). The new mobilities paradigm does not exclude

previous migration theory, but rather addresses that the movement of people is simply one part of a complex network of flows and connections.

Forced relocation literature highlights that populations who are required to move will display different patterns of mobility. In particular, research after the Indian Ocean tsunami of 2004 (for example, Gray et al., 2009) demonstrates that people in the post-disaster context tend to relocate in areas for different reasons than they would in their 'normal' environment. If anything this heightens the need for an understanding of the new mobilities paradigm, and this research into the Christchurch setting offers the opportunity to investigate how post-disaster mobility differs to other contexts. Despite a wealth of post-disaster research, little is known about the decision making processes experienced by those who are being forced to relocate. Residents after Hurricane Katrina and the Indian Ocean tsunami had no choice on where they were relocated to, and in the case of Katrina were often displaced by thousands of kilometres (Weber & Peek, 2012). However the Christchurch setting is relatively unique in that those who have been displaced appear to be offered ultimate freedom in where they can move to. Therefore it is important to look at patterns of mobility, not only to understand the relocation trajectories, but also to understand the wider implications of these moves. This idea of perceived freedom of choice in the relocation process is also of interest to the study as the results suggest that this term is not particularly applicable, or true.

This study can therefore be located at the intersection of two strands of research. The first one, mobilities and movement through space, has focused on demography, geography, sociology, political studies and economics for a number of years. Tied in with this body of literature are attempts to disentangle the influence of actors in determining mobility. The social science debate of structure and agency allows us to understand the extent to which movement is both inhibited and promoted by processes and actors. In a way, understanding the structure and agency debate allows us to conceptualise movement in such post-disaster environments. Rather than considering

residential relocation as simply movement from ‘A’ to ‘B’, such approaches enable the consideration of the constraints and enablers that leads to such movement.

The second strand, post-disaster relocation and displacement research, has particularly focused on the mobility patterns, levels of well-being and disaster experience of those who are relocated after extreme natural events. As a result the subject area has a strong psychology, sociology, and community recovery literature background (perhaps the most well-known being Norris et al., 2002). Whilst a small amount of research has focused on the displaced population’s intentions (i.e. Goldhaber et al., 1983), they often have little choice in regards to their mobility patterns. As a result there has been little focus on where the new environment may be, but rather how the displaced population settle and adjust in this environment (i.e. Belcher & Bates, 1983). However, as will be explored in this study, there is often an important link between disaster experience and mobility/relocation choice.

The combination of these strands has a two-fold outcome. Firstly, with reference to the literature we are given the ability to understand the Christchurch post-disaster environment in regards to other international disasters. Secondly, we are able to explore the mobility patterns of the study participants with an acknowledgement of what processes influence and promote movement in itself. As we move towards a greater understanding of post-disaster relocation behaviour this thesis highlights how the fundamental lack of a relationship between the two strands has affected real-world decision making in the Christchurch context**.**

Aims and Research Questions

The thesis aims to understand and interpret patterns of population mobility amongst those who were forced to relocate as a result of the Canterbury earthquake sequence of 2010 and 2011. 31 households from the suburb of Southshore, Christchurch, were longitudinally interviewed and surveyed. The research traced their experience from the ‘red-zone decision’ (from this point

residents had 12 months to vacate their property) until after they had moved into a new place of residence.

The Canterbury earthquake sequence has resulted in one of the largest documented population movements -- both temporary and permanent -- in New Zealand's history. According to Statistics New Zealand (2011), the resident population of Christchurch decreased by 8,900 (2.5%) people between June 2010 and June 2011. This statistic does not incorporate the significant internal displacement (movement within the city) and short-term relocation following the quakes. A further combination of a 22% rise in international migrant departures from Christchurch in 2010-11, and post-quake accelerated population growth in the surrounding areas of Selwyn, Ashburton and Waimakariri (Statistics New Zealand, 2011), has highlighted the impacts natural disasters can have on population movement.

This research therefore attempts to investigate how people's mobility patterns may have been affected by demographic variables (for example, age or income), organisations (such as government departments and insurance companies) or wider contextual processes (for example, the housing market, the zoning process, or the existence of particular opportunities). In particular, the research attempts to differentiate between patterns of short-term mobility (defined in this context as temporary residential relocation before the zoning announcement) and long-term mobility (defined in this context as residential relocation after the zoning announcement). As well as documenting specific population movement, the research seeks to gain an understanding of the experience of forced relocation and, in relation to international literature, to determine whether different disasters or contexts affect population mobility in different ways.

The research will address the following questions with respect to red-zoned residents in Christchurch:

1. What patterns of mobility are evident amongst those forced to relocate, both immediately after the 2010 and 2011 earthquakes and up to the present point in time?
2. What factors have influenced the mobility and relocation decisions of red zone residents in this time period?
3. What factors are valued by red-zone residents when making a post-quake housing decision, and how do these compare to pre-quake housing decisions?
4. To what extent do the displaced feel in control of the relocation process, and how does this affect their decision making?

The results of the research will enable the exploration of the following over-arching questions:

1. In regards to international literature, to what extent do post-disaster mobilities patterns differ by disaster and context?
2. Does the capability exist to promote positive forms of mobility (i.e. intra-local mobility, as highlighted by Birkland, 1997) after a disaster event?
3. What recommendations can be made using information from the research results and other international literature?

Thesis Outline

This thesis is comprised of seven chapters. Beyond this introduction, Chapter 2 introduces how human residential relocation is understood. It briefly discusses how aspects of migration theory have contributed to our understanding of mobility. Traditional and current interpretations of determinants and barriers to residential relocation are discussed, with particular reference to the structure and agency debate. This chapter then moves to review the post-disaster mobility literature, highlighting short and long term mobility behaviours from a variety of contexts. Lastly, the documented effects of forced relocation on the health, well-being and disaster experience of affected populations after previous global disasters are evaluated.

Chapter 3 focuses on the context of this particular study- the Canterbury earthquakes of 2010 and 2011. This chapter details the significant earthquake events and presents the limited data available regarding population movement within, and outside of, Christchurch after the February 2011 quake. The introduction of central government, the zoning process, and the roles of government and private organisations in the Canterbury environment are then discussed. This chapter also highlights a number of well-publicised issues with the recovery phase and reviews the potential implications for post-disaster movers. The chapter then moves to introduce the research area, the suburb of Southshore, Christchurch. Lastly, this chapter briefly explores the effects of the earthquake sequence on Southshore and discusses, as publicised in local media, issues with the zoning announcement for the suburb.

Chapter 4 describes the methods and philosophical assumptions adopted in this study. It discusses the selection of the study area, explores the reasoning behind the selection of research tools and describes processes used in research analysis. The research process is then reviewed, with particular focus on some of the issues encountered during the research and limitations in adopting aspects of critical and interpretive research in the methodology.

Chapter 5 exists as a largely qualitative exploration of the research results, in turn highlighting both short and long term mobility patterns exhibited by participants. The mobility patterns of 31 households are compared and a number of patterns and themes are explored. The chapter also explores the extent to which different variables affect the subjective well-being (SWB) of participants, as well as how different organisations and environmental conditions (such as the housing market) influenced disaster experience and relocation outcomes.

Chapter 6 builds upon the previous chapter by arguing for a provisional typology of post-disaster movers. I argue that a number of analogous mobility behaviours emerge from the results and the international literature. I use the chapter to present a typology of behaviours and discuss the

characterisations of each particular group. In doing so the chapter reflects upon the applicability of such a typology to other contexts.

Chapter 7 reiterates the research objectives relative to the findings. The chapter evaluates the research findings and proposes a number of recommendations based upon the research and previous literature. The chapter concludes by discussing future research possibilities.

Chapter 2: Key Research Concepts and Relevant Literature

Introduction

This study focuses on the relocation process and experience of disaster of those within the Southshore red-zone, after the Canterbury earthquake sequence. In this research three over-arching areas of conceptualization/literature can be identified; changing theories of migration and mobility, post-disaster mobility and the effects of forced relocation.

In this chapter these areas of literature will be introduced and discussed. This chapter begins by exploring how residential movement has been conceptualised by previous literature. The aim of this section is to provide readers with an understanding of the ways in which previous studies have understood how and why humans move and residentially relocate in particular patterns. In doing so the intention is to highlight how previous studies have viewed potential constraints and inhibitors to residential relocation, particularly when referring to roles of social structure and human agency in determining human movement. As a result, this section reviews how our understanding of relocation encompasses the movement of information, capital, culture and aspects of the physical and social environment too. As discussed in the post-disaster mobilities section, this is important when attempting to understand mobility behaviours in such contexts.

The second section in this chapter aims to provide the reader with an understanding of the range of behaviours that residential movers exhibit in the post-disaster environment. As a result, a large section of the chapter is dedicated to exploring the three significant post-disaster mobility behaviours identified in the literature (opportunistic mobility, mobility as a coping behaviour, and re-creation of environments through residential movement). The contexts of these studies are discussed throughout these sections in order to determine their potential applicability to the Canterbury post-quake environment. Evaluation of previous post-disaster studies relevance to the research results for this study occurs in Chapter 6. The post-disaster mobilities section of this

chapter concludes with an evaluation of demographic differences in mobility patterns after disaster, as well as a discussion into resistance to residential relocation as highlighted by previous studies.

This chapter concludes by providing the reader with a summary of the potential effects of residential mobility, and immobility, after disaster. This particular section focuses on highlighting the difficulties faced by populations in such environments, and the effects of particular mobility patterns and behaviours on relocatee's health and well-being. It is here that the reader is provided with two conceptual models, relevant to the Christchurch context, that enable understanding of the relationship between mobility and physical and psychological stress: the Impoverishment, Risks and Reconstruction Model (IRR) and Scudder's (2005) Stress and Settlement Process.

Changing Theories of Migration and Mobility

The development of migration theory is particularly important to this study. By the early 20th century residential movement was seen to be the result of character flaw; an inability to maintain social connections or grasp economic opportunity in one's community (DeLuca, Rosenblatt &Wood, 2013). Migration theory from early 20th century therefore assumed that human movement from one environment to another was relative to opportunity. Opportunity, from the perspective of post-disaster movers, was seen to be environments that held resources that the previous environment lost in the natural event.

Academic understanding of human movement has progressed, however. A deeper understanding now exists of why and how humans migrate and relocate. More recent studies of post-disaster mobility argue that relocation encompasses the movement of objects, processes, capital and knowledge, as well as people. This thesis situates itself in what has become known as the 'new mobilities paradigm'. Participants are viewed as part of a 'placing' of the world: one part of a network of flows, connections, of barriers of information, materials and landscapes. The following sections explore this development in understanding, in particular highlighting the reasons behind

the emergence of the new mobilities paradigm and its relevance to this study and context. The section then moves to explore the extent to which aspects of structure and agency are relevant in explaining human movement and residential relocation.

The Causes of Residential Movement

Investigations into human movement and migration extend back to the late nineteenth century. In 1885 Ernst Ravenstein published a paper entitled "The Laws of Migration" (Ravenstein, 1885). Using census data from the United Kingdom, he attempted to explain migration and concluded that; most migrants only move short distances, each main current of migration produces a compensating counter-current, migrants proceeding long distances generally go by preference to one of the centres of commerce or industry (i.e. towards opportunity), and that demographic variations existed in migration behaviour (females were more likely to migrate than males).

At the heart of Ravenstein's emerging migration model were the concepts of *absorption* and *dispersion*. He defined an area of absorption as an area that on the whole took in more people than it gave up. An area of dispersion, then, would be an area that on the whole gave up population over time (Corbett, 2001). A population would move to an economic centre, for example, leaving a gap, which would then be filled by another group of migrants. Early post-disaster studies (for example, Goldhaber, Houts & Disabella, 1983) assumed that the disaster environment would become an area of dispersion if resources required to live were lost. However, Ravenstein's approach was labelled "essentially individualistic and ahistorical" (Castles & Miller, 1993, pg. 20), as it appeared to ignore important influences on migratory behaviour such as government restrictions and wider societal and cultural influences (Castles & Miller, 1993; Greenwood & Hunt, 2003). The ignorance of these influences resulted from Ravenstein's positivist approach (i.e. deriving results from quantitative methods, whilst rejecting interpretive knowledge).

While Ravenstein's theories have not been discounted, migration theory has developed in order to understand the interplay between 'push' and 'pull' factors of particular environments. Bogue (2010) identifies four major categories of migration theory that have emerged;

1. the ecological theory of migration as environmental adaptation [Malthusian population pressure]
2. the neo-classical socio-economic theory of rational choice and utility maximization
3. the modernization-economic development theory (urbanization, nation building, migration transition)
4. the globalization theory of transnational migration

For the purpose of this thesis, the modernization-economic theory and the globalization theory of transnational migration are less immediately relevant. Whilst useful in understanding the development of migration theory, they offer little in regards to post disaster mobility, or the Christchurch context.

The ecological theory of migration as environmental adaption refers to the 'push' aspects of an environment. Thomas Malthus (1830) noted that while human growth is exponential, the resources for sustaining life increase only arithmetically (linear upward). As a consequence populations tend to expand until constrained by environmental limitations. Belcher and Bates (1983) believe that this theory is applicable to the post-disaster environment, stating "flight from the customary place of residence is essential because current levels of technology do not permit survival once needed resources have been destroyed" (pg. 119).

The neo-classical socio-economic theory of rational choice and utility maximization meanwhile explores the interplay between the push and pull factors of different environments. The classical economics theory of migration is an effort to maximize utility. These costs and benefits may include factors such as employment, health issues, future of children, and availability of valued amenities or religious ties. This theory emphasizes that the forces that stimulate migration are both positive and

negative. Push-pull migration is seen not only as an escape from negative environmental conditions at home but as an opportunity to live somewhere 'better'. It confers an upward mobility, opportunistic, 'greener pastures' dimension to migratory behaviour (Bogue, 2010). Lee (1966) argues that this interplay is not one equation, but rather a balance of push-pull at origin and push-pull at destination. Figure 1 illustrates Lee's equation, highlighting the obstacles that exist between locations. Academics investigating post-disaster mobility in the twentieth century tended to adopt a form of this neo-classical socio-economic theory in explaining behaviour. Studies tended to highlight the negativity of the disaster environment in relation to the positivity of neighbouring environments in exploring decisions to relocate (for example see Belcher & Bates, 1983).

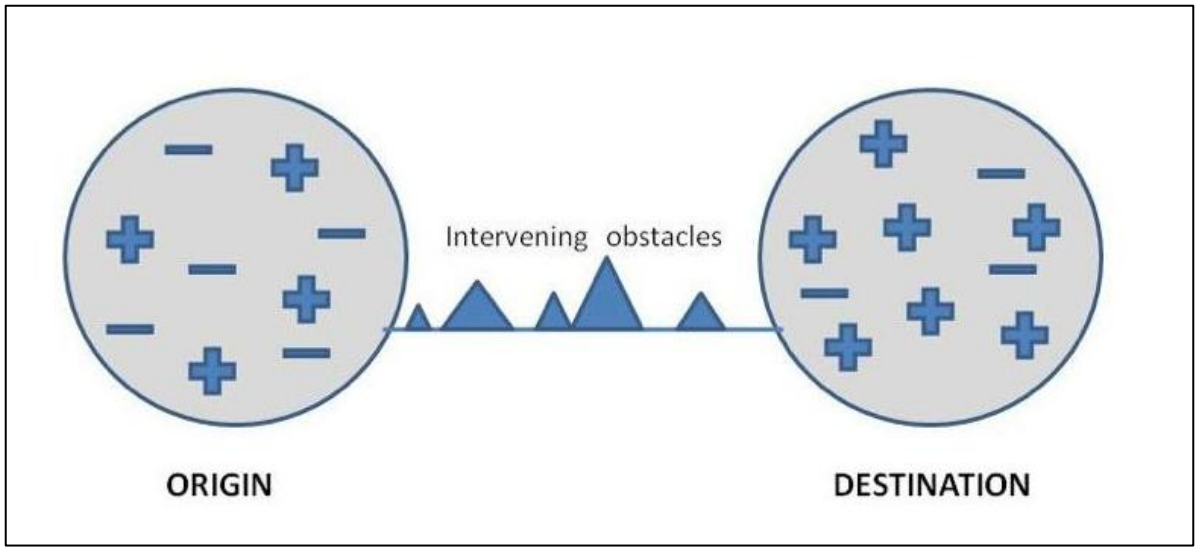

Figure 1: Lee's push-pull migration model.

Nevertheless, with its origins in the 19th and 20th centuries the term 'migration' is often no longer used in regards to post-disaster movers. This is not to say that it is not relevant. Whilst migration is now thought of as a part of a wider 'mobility paradigm' (see next section), migration theory is also relevant to the process of residential relocation discussed in this project. As discussed in Chapters 5 and 6, many aspects of these theories (especially aspects of the ecological theory of migration as environmental adaption) can be seen in resident's relocation decisions after the Canterbury earthquakes. In the next section I present and discuss how the new mobilities paradigm addresses

weaknesses within the migration approach, and explain how it draws upon migration theory to explain and conceptualize movement.

The New Mobilities Paradigm

This thesis situates itself in what has become known as the 'new mobilities paradigm'. The previously discussed approaches to migration all assume that humans move out of one fixed environment into another. Cresswell (2010) points out that throughout history geographers have developed a range of theoretical approaches and methodological tools that account for and explore the relationship between mobility and fixity. However, academics now recognise that migration is not simply movement from a fixed environment to another.

The new mobilities paradigm is an approach that explores the movement of people, ideas and capital, as well as the broader social implications of those movements. Mobility studies have traditionally offered critiques of the bounded and static categories of nation, ethnicity, community, place, and state (Sheller & Urry, 2006). In doing so such studies attempt to address feelings of displacement, disjuncture and dislocation experienced by migrants. At the same time they recognise the interrelation between movement and dwelling, and acknowledge the 'homing' and 'regrounding' that occurs (Sheller & Urry, 2006). When leaving a home, or place, migrants take parts of it with them both (physically and psychologically), in turn reconfiguring the place of arrival figuratively and imaginatively (Tolia-Kelly, 2006).

Of particular relevance to this project, the new mobilities approach also considers the movement of images and information in local, national, and global media. The concept of mobility includes one-to-one communications such as the telegraph, fax, telephone, mobile phone, as well as group communications affected through networked and increasingly embedded computers (Sheller & Urry, 2006). The mobility approach recognises the infrastructure that organise the flow of people and information, as well as the 'walls' or 'gates' that limit, channel and regulate movement or anticipated movement (Adey, 2006). This is particularly relevant to the participants in this project

when understanding what barriers exist to particular mobility behaviours in the post-earthquake environment (and is explored more in depth in the structure and agency section of this chapter).

Instead of conceptualizing place as fixed, rooted and something we move 'into', mobility studies think of places as open to the world and 'in process' (Cresswell, 2009). Places are not an object, or 'thing', but rather a gathering of materials and movements (Blunt, 2007). While theorists such as Ravenstein and Lee are not incorrect in their assumptions, asserting that people simply shift environments (for example from a disaster affected one to a 'normal' one) is somewhat one-dimensional. Despite migration theory being about people movement, it was really about places (Cresswell, 2010). This is to say that migration theory focused largely on 'place 1' and 'place 2' rather than the flows between them. Caletrio (2012) argues that with this understanding it becomes problematic to talk about self-contained societies in the sense that people speak of, for instance, a 'New Zealand society', because significant social relations occur across local and national boundaries.

The mobility approach acknowledges the movement of more than people, the flow of ideas, culture, information and material goods to different points in space. Cresswell (2010) argues that there is a politics and geography of power bound up with practices and discourses of both mobility and fixity, and it is important to understand these power relations and examine processes by which particular mobilities are produced. This is particularly relevant in the post-disaster context where, and further explored in Chapter 5, mobility and immobility appear to be derived from the relationships between red-zoners and government organisations.

In addition to this, while this project is concerned with residential relocation, participants are viewed as part of this 'placing' of the world; one part of a network of flows, connections, barriers of information, materials and landscapes. Cresswell (2010) states that mobility exists in the same relation to movement as place does to location, and that mobility involves a fragile entanglement of physical movement, representations and practices. He argues that at any one time there are

pervading constellations of mobility: particular patterns of movement, representations of movement and ways of practicing movement that make sense together. This is clearly evident in the research findings. Chapters 5 and 6 explore this.

The previous sections have briefly explored the way in which human movement, in particular residential movement, has been understood and conceptualised. Researchers, and particularly those within geography, have presented a number of theories which examine the way in which 'things' move through space, or more to the point; the capabilities that restrict certain movements. However, none of these are post-disaster specific. The following section introduces aspects of the structure and agency debate, which enable understanding of how particular mobility patterns may be produced. Whilst the previous sections have explored why people may move or residentially relocate, the following section poses the question; what determines the way things (including people, information and capital) move?

Structure and Agency in Mobility

The role of structure and agency in shaping human behaviour is highly significant to an empirical examination of mobility. In this section I present and discuss aspects of the structure and agency debate, exploring to what extent mobility behaviour may be shaped individual agency or social structures. This section is not designed to present a historical and complete view of the debate, rather I have chosen to present aspects of the issue so that it can be viewed in relation to participants' experiences.

Academics recognize two main determinants of social phenomena, social structure and individual actions (human agency); what is contested is their relative importance (Sewell Jr., 1992). The concepts of structure and agency refer, respectively, to the basic organizational features of particular societies and peoples' capacities to act within their social contexts (Chouinard, 1997). The debate has become engrained in the social sciences, particularly as they allow us to understand the relationships between nature, power, behaviour and organisation in society, and also the way in

which different groups negotiate and challenge the influence of power, such as governmental intervention (Ritzer, 2007).

Arguments of prevailing structures suggests a vision of the world where powerful 'structures' are dominant and responsible for orchestrating the conduct of human individuals (Tan, 2011). Barnes (as cited in Tan, 2011), in explaining the rationale of the structural view, stated that,

> Curiosity was satisfied by appeal to [norms and rules] as externalities. What is making people act thus and so? They are confirming to norms. Why is there an overall pattern in their actions? Because there is an overall pattern in the norms. What is the pattern? It is that of the social system or structure of the society in question; and by reference to that system or structure, wherein rules and norms are ordered around statuses to form social institutions, actions may be understood and explained. (pg.39)

Tan (2011) believes that, in light of this view, structural arguments consist of objective and external constraints on human beings, their behaviour and their interpretation of the environment around them. Perhaps most prominent in the argument for the domination structures was Emile Durkheim (1938), who believed that patterns are "collective habits finding expression in definite forms, [like] legal rules, moral obligations, popular proverbs, social conventions, etc." (pg.45). Fay (1996) argues that this means "explanations of even the most individualistic appearing acts are a function of impersonal laws and forces characterizing social wholes" (pg.51).

In conflict with the structural view is an 'agency centric' approach. This emerged from the argument that structural constraints solely determined human conduct. A new interest emerged that emphasised human action as the main object of research, with the recognition that perhaps humans can actively decide on the courses of actions they want to pursue. In doing so, the agency approach suggests that individuals have the capacity to reason and decide on certain actions through micro-level processes of interaction and 'meaning-orientation'. A person is not a static entity who is inscribed on by over-arching forces, rather they are a dynamic, rational, and motivated actor capable of individualised actions (Tan, 2011).

The structure argument has helped highlight, for example, the need for closer attention to how particular behaviours are conducted and legitimated by organisations within an environment. Meanwhile the agency approach assumes some form of rational or individual choice in decision making, including residential relocation decision making. Baert and da Silva (2010) state that,

> By rationality, it is meant … that while acting and interacting, the individual has a coherent plan, and attempts to maximise the net satisfaction of his or her preferences while minimizing the costs involved. Rationality thus implies 'the assumption of connectedness', which stipulates that the individual involved has a complete 'preference ordering' across the various options. (pg.128)

Therefore by assuming an agency approach to research, an individual is said to have the capacity to have rational thought outside of the influence of power structures. Giddens' duality of structure set to establish a framework in which both structure and agency could be understood and analysed. He saw structure and agency as an iterative process (Tan, 2011), where the "constitutions of agents and structures are not two independently given sets of phenomena…but represent a duality" (Giddens, 1984**,** pg. 25).

The debate is particularly relevant to the study of mobility itself, let alone after disaster. In this study (and later explored in Chapter 5) relocation is the result of government intervention (i.e. structural domination). However, and what is discussed in Chapter 5, is the extent to which participants believe their relocation 'choices' are dictated by individual selection, or larger social structures and processes. As highlighted in the last section of this chapter, if post-disaster movers feel that their relocation decisions are dictated by groups/processes bigger than themselves, they tend to report more negative and stressful disaster experiences.

The previous section has highlighted how migration theory has contributed to our understanding of mobility, commonly referred to as the new mobilities paradigm. As well as exploring how human movement was understood, the section aimed to highlight that there are different interpretations of what affects patterns of mobility itself (i.e. structure and agency). I will now discuss how researchers

have applied this concept of mobility to the post-disaster context. The following sections explore upon the behaviours and patterns exhibited by post-disaster movers (forced or otherwise), whilst reflecting on the potential applicability of the study environment to the Canterbury context.

Post-Disaster Mobilities

Disasters and natural hazards can cause significant population movement. A disaster of even the smallest kind will undoubtedly produce some movement of population, even just temporarily (Belcher & Bates, 1983). In the following sections I explore literature that has studied such mobility in the post-disaster context. I begin by briefly clarifying the terminology adopted by such studies. In examining the post-disaster mobility literature previous findings are presented and explored, drawing upon three notable and consistent themes; namely, mobility as a coping behaviour, opportunistic mobility after disaster, and re-creating environments through mobility behaviours. The next section provides the reader with the differentiation between short and long term mobility as highlighted by literature after natural disasters. This distinction is particularly relevant to this study, where the methodology makes a distinction between short-term mobility, and longer-term residential relocation. I conclude this section of the chapter by briefly exploring demographic variations in mobility behaviour and resistance to residential mobility after disaster.

Relatively little research has been conducted on population movements after natural disasters in developed countries (Love, 2011). A much greater volume of literature considers the economic impact of disasters and the phases of the recovery process, but does not present empirical data on population movements. Nevertheless, the literature that does exist suggests that those who relocate after disasters tend to exhibit specific behaviours. In relation to this project it is imperative to understand the context in which these behaviours emerge, and the initial reason for moving.

Black et al. (2013) argue that distinctions need to be made between the terms that are used to describe migration after extreme events. Whilst this thesis uses the terms ‘residential relocation’

and ‘forced relocation’, it must be accepted that these are not always entirely contextually appropriate (Mileti & Passerini, 1996). The Oxford dictionary defines resettlement as to “settle again in a new or former place” (Oxford Dictionary, 1995, pg. 1170), while the same dictionary defines relocation as “move to a new place to live” (Oxford Dictionary, 1995, pg. 1161). In relation to this study both terms are used with the definition of movement of people to a new place to live other than their previous residence. Most social scientists who have studied people moving to new locations have also used both relocation and resettlement terminology to the same effect (Gonzalez-Parra & Simon, 2008; Yuefang & Steil, 2003; Dwivedi, 1999; Perry & Lindell, 1997; Fernando, 2010). However, a small proportion of post-disaster studies (for example Raju, 2013) use ‘resettlement’ to mean ‘forced relocation’, with the belief that ‘relocation’ assumes some form of choice.

Nevertheless, such a distinction between relocating and resettling often hides the fact that the degree of choice faced by individuals is highly varied, with hard and fast distinctions between choice and no choice being very difficult to maintain (Black et al., 2013). An individual may choose to leave at a particular time, or in a particular direction, responding to opportunities to make the best of a difficult situation. Yet those choosing to leave their place of residence to seek life in another place may also find their choices severely limited. In this sense, to characterize a refugee or forced migrant as someone who does not exercise choice, or whose choices are more constrained than voluntary migrants may be an oversimplification. As a result, the notion of a ‘trapped’ population is not a straightforward one, not least because it is as difficult to distinguish, either conceptually or in practice, between those who stay where they are because they choose to, and those whose immobility is in some way voluntary (Kloos & Gebert, 2013).

As a result it is important to state that the literature review for this study noted a conflation of the terms associated with post-disaster mobility. However, and what is most prevalent in regards to this branch of literature, is that previous studies appear to use the terms ‘migration’ and ‘mobility’ interchangeably- even in the era of the new mobilities paradigm. The use of the terms allows for the

analysis of human movement in such a context, without distinguishing the reasons for such behaviour (i.e. ignoring the concept of choice in post-disaster population movement). Where this has affected how we interpret the ideas that are presented I have noted the context in which the study uses specific terminology.

Post-Disaster Relocation Patterns

A plethora of literature exists in regards to human behaviour after disaster. From twentieth century studies into recovery strategies (for example see Barton, 1969), to more recent studies on disaster vulnerability (for example see Bolin, 2007), there has been a keen academic interest in how humans behave in such an environment. Third-world post-disaster migration and relocation, in particular, has been at the forefront of this, largely as the ramifications of population movement extend far past the individual sphere and also into the political and planning environments (Myers, Slack & Singelmann, 2008). Despite the variation in contexts and cultures it appears as though post-disaster relocation decisions have several observable, consistent themes.

From an examination of the relevant literature I believe that post-disaster mobility and relocation patterns fall broadly into three groups, namely; mobility as a coping mechanism, opportunistic relocation/mobility and mobility that attempts to re-create environments and behaviours. This is not to say, however, that these groups are distinct. As the next sections highlight, relocation decisions after disaster are often the result of a complex interplay of processes and behaviours.

Mobility as a Coping Behaviour

Mobility can be viewed as an individual or household coping strategy to escape poverty, insecurity, or natural disaster (Snel & Staring, 2001). It is recognised that people confronted with any form of insecurity have been migrating throughout history (Benda-Beckman and Benda-Beckman 2000). Among pastoralists and nomadic people in particular, mobility was, and still is, an important adaptation to the conditions set by the environments that people lived in (Snel & Staring, 2001).

Residential movement can become an important way for people living under harsh or difficult conditions to improve their individual or household position. Ravenstein noted that "…nothing can compare with the desire inherent in most men to 'better' themselves in material respects" (1889, pg. 286). Interpretations of this, and migration in general, appear to be linked to poor economic and housing conditions, people's desire to improve their position and the lack of the current environment to provide valued resources (Clark & Huang, 2004). Therefore the idea that migration serves as a coping mechanism to difficult circumstances is not a new one.

Residential relocation, on a permanent or temporary basis, is one of the key survival strategies adopted by people in the wake of a disaster (Hugo, 1996). Gray et al. (2009), in regards to population displacement in Sumatra after the Boxing Day Tsunami, stated,

> The results indicate that post-tsunami mobility can be best understood as a coping mechanism that is, at least in part, voluntary. Individuals did not [necessarily] flee to the nearest safe haven and remain there, but instead drew on all of their resources and moved to a preferred destination … This process was distinct from mobility in undamaged areas and differs from mobility as described by previous studies of migration in non-disaster contexts. (pg. 29)

In finding high levels of residential mobility after the tsunami Gray et al. (2009) argued that change in location is clearly a key post-disaster coping strategy for many. It appears as though rather than packing and fleeing, populations affected by disaster prefer to relocate to an area where they feel safe, or have access to the resources the origin environment cannot provide. Often this is a location they have had previous attachment to, or movement within (Lu, Bengtsson & Holme, 2012). Belcher & Bates (1983) further this, stating that in the aftermath of the Guatemalan earthquake of 1976 one key response to the disaster was immediate relocation out of the affected area, motivated by needs for shelter or assistance, to search of employment elsewhere, or to reduce demands on household and family members who stay behind. They argued that migrants seek opportunity to live with

family or friends in nearby, unaffected areas (an idea reinforced by Carletto, Davis & Stampini, 2008).

In an attempt to explore why people move after disaster, Wolpert (1966) outlined a theory of movement as an adjustment to environmental stress. Wolpert explores a stress-tolerance model with a threshold at which the decision to move is made. The model suggests that the effect of a drastic environmental event, such as a disaster, could push stress beyond the threshold of tolerance. The question therefore remains as to how strong and how enduring are stresses associated with disaster experiences relative to other stresses of living (Goldhaber, Houts & Disabella, 1983). Fussell, Sastry & Van Landingham (2010) suggest that damage to housing, caused by natural disasters, is often the stress that tips the threshold, resulting in migratory behaviour (both short and long term).

However there appears to be contention as to the relationship between mobility and the level of damage experienced by individuals and households. Myers, Slack & Singelmann (2008) argued that the more permanent migration after disaster seemed to be those who experienced a push from the home communities, such as damaged homes and infrastructure. Gray et al. (2009) highlighted that levels of mobility increased dramatically with the extent of disaster damage, in the case of the Boxing Day tsunami. They stated that displacement from heavily damaged areas occurred primarily beyond the community of origin. Chang (2010), in an analysis of the relationship between population change in the year following the 1995 Kobe earthquake and the level of housing damage, highlighted that there is a strong correlation between level of housing damage and loss of population.

Belcher & Bates (1983) believe this is the conventional narrative in regards to coping through mobility; that the greater the damage, the more movement is expected. However the results of their displacement study after Hurricane David in the Dominican Republic found no consistent themes between the willingness to move away from the disaster and levels of damage. Cutter (2011) also stated that, people who suffered no damage and people who had suffered heavily seemed to have migrated in about the same proportion after Hurricane Katrina. In what may be particularly relevant

to this study, it appears levels of strong place attachment may reduce the desire to change environments. Furthermore, using panel datasets from Indonesia, Tse (2011) highlighted that the three most common types of disasters (earthquakes, volcanic eruptions and floods) in fact reduce the likelihood for households to move out as a coping strategy, "contrary to our intuitive understanding and findings of existing research" (pg.1). From this it appears as though the impact of natural disasters on housing does not always result in migration.

These studies, however, often do not distinguish the length of time that this 'coping behaviour' occurs for. Considering the context of this study (i.e. forced relocation due to government intervention) it is interesting to note the lack of focus of literature in whether short term migratory coping behaviour translates into long-term relocation or resettlement. Muggah (2008), on noting relocation failures in Sri Lanka after the Boxing Day tsunami of 2004, commented that a proportion of the 300,000 internally displaced people residentially relocated away from government camps as a coping behaviour in itself. The government enforced 'exclusion areas' meant that affected populations who temporarily moved into neighbouring areas were unable to gain access to the origin environment, and as a result resettled in these neighbouring districts. Having the freedom to live outside of government camps, and in areas where employment is available, appears to have resulted in short-term coping behaviour subsequently initiating longer-term resettling patterns. Unfortunately there is little further evidence of coping behaviour informing long term mobility and relocation patterns in the literature.

Opportunistic Mobility

As well as mobility as a coping mechanism, the literature also suggests a form of post disaster mobility that attempts to take advantage of opportunities that may be presented to disaster affected populations. The relationship between migration and opportunity is not a new idea. However the post-disaster context provides an environment where, under specific circumstances, affected populations may have the opportunity to better their individual circumstances (even

compared to pre-disaster levels) or to take advantage of circumstances that emerge from the event itself.

In a post-disaster context, Levine, Esnard & Sapat (2007) argued that conventional wisdom holds that those who eventually return to their original homes, or nearby, do so because they have economic opportunities there. However those who permanently relocate lack such an opportunity and anticipate new rewards in a new setting. In an investigation into mobility after an earthquake in Guatemala City, Davis (1978) noted that many places experience a large surge of population after a disaster. He reported fringe city dwellers moving into the city after the earthquake for wages four times what they would get in other places. The earthquake offered an opportunity for people to move and they took advantage of it. First, there were new houses and opportunities to acquire in undamaged parts of the city. Rumours of cheap and free housing drew many to the city, and upper-class families saw the opportunity to make a profit in the near future (Davis, 1978). Thus, it can be seen that migration to one of these areas was a rational move for those wishing to make economic gain. The conclusion must be drawn that, in this case, movement was produced by economic opportunity created by the earthquake, and not by economic loss (Belcher & Bates, 1983).

However, post-disaster mobility is not necessarily derived from an attempt to make economic gain. Often extreme natural events allow households to become more mobile, as fixed resources (such as jobs, houses and financial investments) are either lost or re-gathered (Gray & Mueller, 2012). A context similar to Christchurch was the Victorian Bush-Fire Buyback Scheme in Australia, where eligible landowners with damaged land could have their plot purchased by the Victorian government. If they chose to sell their property, the property under negotiation was valued at both pre-2009 bushfires and current market rates, with the landowner receiving the higher of the two valuations (State Government of Victoria, 2012). This approach effectively enabled the freeing up of financial resources to allow affected populations to move. Critics argued that this form of governmental buy-out not only allowed people to move to safer areas, but was both unfair to those

who paid insurance premiums on their land anyway, and left ineligible populations without the freedom to move (Nolan, 2010). Oliver-Smith (2007) argued that households who received pay-outs tended to use the natural disaster as a catalyst to implement previously thought about plans or ideas.

Myers, Slack & Singelmann (2008) highlight that people post-disaster environments tend to take the opportunity to locate near family and friends. This may be borne out of reinforcing feelings of safety, but also often was a future plan that was brought forward as a result of the natural event (Oliver-Smith, 2007). Jha et al. (2010) state that often it was the intention of disaster movers to move closer to valued amenities, such as family, in the future and that the natural event allowed them to move at that time. Perhaps more synonymous with disasters in the Western world is the notion that people see post-disaster mobility as an opportunity to change their housing situation. For example, families, whose size may have decreased as a result of children moving out of home are given the ability to move to a smaller house, outside of the disaster zone. This may have been a plan in the future, but the natural disaster allowed them to bring forward these plans, and take advantage of the freeing up of financial resources (Mileti & Passerini, 1996). As a result Belcher & Bates (1983) believe that natural disasters often do not alter the general migration patterns, but simply speed the process in which it would occur. The pattern is also echoed by Love (2011). This point, however, is highly contestable, and a large amount of literature exists that suggests mobility patterns do in fact change (Myers, Slack & Singelmann, 2008; Ali Badri et al., 2006; Parrinello, 2011).

Those who exhibit opportunistic mobility behaviour in the post-disaster context have been labelled as ‘innovative movers’ (Morrow-Jones & Morrow-Jones, 1991). Inherent in this is an attempt to change a household’s circumstance by moving, rather than attempt to re-establish the status quo (which is defined as ‘conservative’). Morrow-Jones & Morrow-Jones (1991) suggest that innovative movers after a disaster tend to recover more quickly as they are not measuring their success by achieving the same standard of living experienced before the event. The aftermath of Hurricane

Katrina appears to offer mixed evidence in support of this claim. As a result of heavy governmental/military intervention over 1.5 million people were evacuated from across the Gulf Coast of the United States of America (Weber & Peek, 2012). A number of these evacuees were forced, often at gunpoint, to leave and had no choice as to where in the country to be relocated to. Weber and Peek (2012) report that, as a result, the majority of this displaced population (generally lower socio-economic African Americans) struggled to establish a home in a new relocation, and were often reliant on government support to survive. A small sub-group, however, thrived and managed to effectively relocate, even outside of areas that government had relocated them too. Gray et al. (2009) argued that this form of opportunistic move required high levels of personal resources (such as social networks and financial savings); resources that the majority of those displaced by Hurricane Katrina did not have.

It must be noted, therefore, that of the three patterns of mobility behaviour discussed in this review, opportunistic mobility is the least commonplace. As stated by Fussell (2012) in regards to Hurricane Katrina, the ability of an individual or household to use mobility to their advantage generally requires a specific level of financial and personal resources. Often residential relocation after disaster requires people to 'make the best of a bad situation', in difficult housing markets and environmental circumstances (Levine, Esnard & Sapat, 2007). Morrow-Jones & Morrow-Jones (1991) highlighted this, stating that disaster movers (in the United States from 1974-1981) rated their new residences 'poor' at rates three times higher than non-disaster movers. Nevertheless, some studies suggest that opportunistic movers may not be limited to higher socio-economic or socially integrated groups. While groups with these resources are often given the ability to find opportunity in difficult circumstances, groups without these resources are more likely to display mobility patterns that enable them to gather such valued assets (Fussell, 2012). This may include moving to or away from the disaster the area in search of economic opportunities, such as higher wages through reconstruction related work (Belcher and Bates, 1983).

'I want what I had': Re-creating Environments and Behaviours through Mobility

As well as discussing mobility as a coping mechanism and opportunistic mobility, post-disaster mobility literature tends to highlight a form of environment re-creation through mobility. Mobility and the resulting re-creation of environments are visible in nearly every major city in the world (Logan, Alba & Zhang, 2002). Angel (1992) argues that migrants in general tend to benefit from residence in enclaves that duplicate the culture and environment of origin, including housing structure, the make-up of the physical environment and the presence of similar ethnic groups. In relation to natural disaster the literature appears to argue that people attempt to recover what they had before an event; measuring the success of their recovery in terms of achieving a similar standard of living including, and perhaps especially, a similar standard of housing (Dacy and Kunreuther, 1969; Bolin, 1993; Drabek and Key, 1984). Inherent in this is a desire to re-create the environment in which they lived in before the disaster, either though moving to an area with similar characteristics, recreating these characteristics, or by remaining in the disaster affected environment.

Reconstruction is most often driven by the human interest to resurrect pre-disaster patterns of culture and human interaction. Even in recent times, and in societies where strong external policies and regulations would redirect the character and priorities of urban reconstruction, cities exert a strong preference for reconstruction that is in line with pre-quake cultural priorities (Mileti & Passerini, 1996). Vale (2006) argued that the rebuilding of churches, iconic structures and restoration of heritage buildings are seen as fundamental elements of local culture and patterns of human interaction for some people. However this may not always be possible. Mileti & Passerini (1996) stated that relocation is an often more acceptable alternative to affected populations when the new site offers opportunities consistent with pre-quake cultural patterns. For example, being close to roads, schools, shops and jobs are often highly valued by individuals within a community. Even when rational economic and safety reasons for community relocation and structural changes exist people may resist relocation if the move is seen as "… a step away from proven traditional

strategies … ingrained in local culture … for social and economic stability" (Oliver-Smith, 1982, pg. 99).

As a result relocation may be more acceptable when individual or governmental plans for a new community or property conform to the 'organic' pattern of the settlement that is being abandoned (Mileti & Passerini, 1996). For example, in new communities, characterized by physical grid patterns, residents who have relocated from older, historical communities are quick to build walls, plant trees, and use other adaptions to alter the design of post-disaster settlements to resemble their pre-disaster communities (Aysan and Oliver, 1987). Structural similarity between pre and post-quake communities to conform to culturally relative perceptions of place is also strong in modern urban settings. For example, after the Whittier Narrows Earthquake in California in 1987, land use conflicts emerged when developers planned to turn older single family dwellings into high density condominium and apartment residences (Mileti & Passerini, 1996). These conflicts focused on how such changes would alter the social and cultural character of neighbourhoods. As a result neighbourhood groups often have to fight to maintain pre-disaster housing and land use patterns (Bolin, 1993).

Morrow-Jones & Morrow-Jones (1991) believe that those who residentially relocate after disaster may exhibit the same conservative aspects as those who chose to stay, by attempting to reproduce the old status quo in a new home. These 'conservative' movers often also exhibit characteristics of opportunistic movers, seeking to find an environment that is conducive to pre-disaster patterns and behaviours. Nevertheless Fothergill & Peek (2012) highlight that even those forcibly displaced after Hurricane Katrina attempted to recreate lost environments and patterns of behaviour. Despite having no choice as to the location of their new home, families who relocated to Lafayette, Louisiana, exhibited behaviours that replicated a way of life and living that was experienced in New Orleans, as well as conforming behaviour that was considered 'normal' in the new environment. Children of these relocated families partook in behaviours similar to their origin environment, such

as Little League Baseball and methods of transport, but also incorporated aspects of the new environment into their behaviour (Fothergill & Peek, 2012).

As previously suggested it is argued that populations who exhibit these 're-create and re-build' behaviours tend to take longer to recover from the event itself, largely as they seek to achieve a pre-disaster level of housing and livelihood in often a very different environment. Further analysis between this form of mobility/behaviour and the impact on post-disaster health and well-being occurs later in this literature analysis.

All three 'types' of mobility behaviour described in this chapter touch upon an aspect of timing in regards to relocation after disaster. It appears, particularly with coping mobility, that distinct temporal elements exist in mobility behaviours in different contexts. The following section aims to explore the noted difference between short and long term mobility in post-disaster studies. This is particularly relevant to this study as red-zone residents were told of the zoning decision 18 months after the February 2011 earthquake.

Short and Long-Term Mobility

Post-disaster mobility does not simply encompass one movement, one relocation, or one pattern. Rather, it is multiple flows of ideas, culture, information and material goods to different points. These flows are not necessarily constant, and mobility often varies in times of disaster, recovery and rebuilding. Therefore, this section aims to explore the differentiation studies have placed upon short and long term mobility in the post-disaster environment. As discussed in this section the literature highlights that affected populations appear to exhibit different mobility behaviours at specific times after the event itself.

Gray et al. (2009) highlight that studies of the displaced are often restricted to those in refugee camps, or other forms of temporary settlement. In some cases the focus of the research is shifted to long-term residential relocation patterns (for example see Mileti & Passerini, 1996). In doing so Gray

et al. (2009) argue that these studies often ignore people that are displaced elsewhere, people that do not move, or people who exhibit transient behaviours. Post-disaster mobility is rarely uniform or linear (i.e. there is not a simple, smooth time-space path from a pre-disaster home, to a new residence), and mobility patterns are often a result of the nature of the disaster and length of recovery process (Lindell & Prater, 2003).

In 1991, Morrow-Jones and Morrow-Jones explored the mobility patterns of all households in the United States who noted they moved because of natural disaster. Using United States Annual Housing Survey data from 1974 to 1981, they stated that before the third year (after a disaster) 59.4% of disaster-affected households moved residence again (i.e. moved into a new home after a disaster, then moved again). Over two-thirds move within two years. This is compared with a normal household movement rate of less than 20% per year in the United States at the time (Morrow-Jones & Morrow-Jones, 1991). The results from the survey suggest that, in this context, disaster movers are collectively a 'group in transit'. Their current homes may not be chosen for the usual housing, neighbourhood and cost reasons. A significant number of owners become renters, at least for a time (also highlighted by Levine, Esnard & Sapat, 2007). Entwined with this was an expectation of moving within five years, and significant movement within two years (Morrow-Jones & Morrow-Jones, 1991). This state of flux is possibly the next step in the process of recovery, and long term relocation may only occur once the environment allows it (for example, house prices have decreased, or households have saved a deposit for a new house).

Kammerbauer (2008) argues that it is important to differentiate between patterns of short and long term mobility. As highlighted by Morrow-Jones & Morrow-Jones (1991), households that make long-term moves (i.e. usually residential relocations) still exhibit specific short-term mobility behaviours. However combined with this are disaster populations who only move for short periods of time, for varying reasons. Raleigh, Jordan & Salehyan (2008) state that people displaced by natural disasters typically stay within their country of residence, that post-disaster reconstruction programmes in the

long run can cause populations to move into disaster-affected areas, and most importantly that sudden-onset disasters often lead to more short-term displacement than do slow-onset disasters. Lu, Bengtsson & Holme (2012), in analysis of population movement after the 2010 Haiti earthquake, draw attention to the population of Port-au-Prince, where 23% of the city had left in the 19 days after the earthquake. Their findings suggest that those who left exhibited behaviour that was highly correlated with their mobility behaviour in normal times. This included the location they travelled to outside of the city, but also that the large majority had returned within a 4 to 5 month period (Lu, Bengtsson & Holme, 2012). I believe, however, that this pattern may exist partially as a result of the socio-economic and geographic conditions of Haiti itself. The majority of disaster victims were from lower socio-economic groups, and therefore unable to purchase other property to live in. The geography of Haiti itself furthermore made international travel difficult.

In many ways this short-term movement is also seen as a form of coping mechanism. Often movement away from the disaster area for a period of time, into an unaffected environment, allows for a form of psychological relief from the event itself (Ingram et al., 2006). People in areas prone to sudden onset disasters have a range of coping strategies that are largely based on their available assets and social networks (Raleigh & Jordan, 2010). Raleigh, Jordan & Salehyan (2008) argue that in wealthier states, insurance against disaster is one of these coping strategies. In developing states, coping mechanisms and social networks are closely tied, indicating that losses due to disaster will be shared amongst those in a community or group. Short-term migration is therefore an important household strategy for risk-reduction, as it has been shown that movement can reduce the vulnerability in recovering from disasters (Suleri and Savage, 2007; Raleigh, Jordan & Salehyan, 2008). If a crisis should occur, this most commonly observed reaction has been termed short-term distress migration (Shipton, 1990). When hazards and/or climate changes destroy the resources required to live in an area (including qualitative resources, such as feeling safe) this form of short-term migration occurs. Once an environment recaptures these valued resources, populations then have the capacity to return, should they wish to do so.

Referring to longer-term mobility, the literature suggests that a conventional narrative exists, predicting that natural disasters often increase long-term population mobility (Gray & Mueller, 2012). Studies have highlighted that populations tend to move away from regions with limited resources and environmental damage, and relocate permanently in a new area (Dillon, Mueller & Salau, 2011; Halliday, 2006; Gray, 2011). However an emerging alternative view is that disaster-induced population displacements are often temporary, of short distance and of smaller magnitude than expected (Gray & Mueller, 2012). Gray & Mueller's (2012) investigation into environment events in Bangladesh revealed that natural disasters have important effects on long-term population mobility, as expected. However, contrary to the idea that disasters increase long-term mobility, exposure to disaster did not have consistent positive effects on overall mobility (Gray & Mueller, 2012). This result indicates that although mobility can serve as a post-disaster livelihood strategy, it does not do so universally, and disasters in fact can *reduce* mobility by providing labour opportunities at the origin or by removing the resources necessary to migrate.

Patterns of long-term mobility appear to differ by disaster type. Flooding, for example, undoubtedly causes substantial short-term population displacement (Del Ninno, 2001; Ali, 2007), but there is some disagreement about whether this translates into long-term moves (Paul & Routray, 2010). It appears as though other coping strategies, such as accessibility to bank loans and government relocation and rebuilding strategies, following natural events may influence the relationship between short and long term population movement (Gray & Mueller, 2012).

Post-Disaster Mobility Patterns and Demographic Differences

The literature suggests that particular populations appear to display 'mobile and immobile characteristics' (Bogue, Anderton & Barrett, 2010). This is to say that they exhibit characteristics that make them more likely to move, or display specific mobility behaviours, in the event of a natural disaster. Whilst not relevant to the central theme of this thesis ('forced' relocation supersedes the option to move or stay), the idea that particular demographic or socio-economic groups display

differentiating post-disaster mobility behaviours is important to note. In particular, it appears as though the resources and values held by these groups potentially determine mobility patterns after such an event.

Being younger, unmarried, and from a household with more resources or without a home have all been shown in the literature to be important predictors of mobility in non-disaster contexts (Gray et al., 2009). However Paul (2005) argues that, in sharp contrast, these traditional predictors of movement are not associated with moving out of damaged areas after a natural event. Moreover, taken together, the factors that influence mobility in damaged and undamaged areas are significantly different. Gray et al. (2009) interpret these differences as indicating that movers from damaged areas were most probably initially displaced and their decisions were not driven by the same strategies as movers from undamaged areas. Those who were living in areas that were heavily damaged are over three times more likely to move away from the disaster environment than those who were living in areas that were lightly damaged.

In the same study, a respondent who was injured by the Boxing Day tsunami was five times more likely to move than a respondent who was not injured (Gray et al., 2009). Having family members or friends to whom one would normally look for help who themselves suffered losses in the tsunami is also associated with a higher likelihood of short-term residential relocation. It appears as though the loss of social networks may contribute to mobility, or serve as a reason to reconnect with social networks in other locations.

People who had liquid assets prior to the tsunami are more likely to leave the disaster area, presumably drawing on those resources to cover the costs of moving (Gray et al., 2009). The loss of non-liquid assets (such as farm land or a boat) also appears to be associated with moving further away. Relative to those who move to a private home, people who are more likely to move to a temporary residence tended to be disadvantaged: they are less educated and have lower levels of household per capita expenditure (Gray et al., 2009). Black et al. (2008) previously argued that the

accumulation of financial capital has an unclear influence on displacement. On the one hand, greater wealth appears to enable a household to lower the threshold in which migration is seen as 'required' by drawing on prior savings. This effect will likely be weaker if assets are illiquid (land and housing, for example), particularly if property rights are insecure (Gray et al., 2009). Destruction of some assets is likely to result in greater displacement when alternative opportunities to re-establish one's livelihood exist elsewhere (Black et al., 2008). As an example, people who own a home are less likely to move away. If the home destroyed by the event, the home will no longer impede out-migration (Gray et al., 2009).

Dacy and Kunreuther (1969) highlight that, after the Alaskan earthquake in 1964, husbands tended to remain in the area to help in the recovery work, while their wives and children went to stay temporarily elsewhere, suggesting a gendered difference in post-disaster mobility patterns. One reason for this was an apparent concern for safety; being the threat of recurrent destruction from continued aftershocks. From this it would appear that migration is most characteristic of those family members whose labour is not essential in the rebuilding stage. Other people anticipating employment opportunities flocked into the Anchorage area (Dacy and Kunreuther, 1969). Groen and Polivka (2008) extend this idea using data from multiple cross-sections from the Current Population Survey to investigate displacement after Hurricane Katrina. They illustrate that of the 1.5 million adults displaced, rates of evacuation were similar across demographic groups, with little, or no, gender difference. However within a year 65% of this population had returned to the coastal area, with a higher percentage of men returning compared to women (Groen and Polivka, 2008). This was the result of men looking for employment in the rebuilding of disaster affected areas.

Nevertheless the idea that vulnerable demographics are more likely to leave the wider disaster environment appears to have little academic support. In their study into displaced populations after in Indonesia Gray et al. (2009) wrote,

> We find no evidence that the most vulnerable- such as women, older adults and people with limited resources- are the most likely to be displaced. (pg. 5)

They continue,

> Further, indicators of potential vulnerability such as gender, education and access to social networks, do not appear to play a role in post-tsunami displacement in damaged areas. Thus the patterns observed in previous studies of migration (e.g., that young unmarried adults are most likely to move) and previous studies of vulnerability (e.g., that females, the elderly, and the poorly educated are more likely to be affected by natural hazards) do not appear to hold in general for the case of post-tsunami displacement in Indonesia. (2009, pg. 26)

Although it appears that 'vulnerable' populations appear to be disproportionally affected by natural disasters (Frankenberg et al., 2013), there does not seem to be conclusive evidence that this necessarily results in movement away from the disaster itself. Nevertheless it is important to note, particularly in regards to residential relocation patterns, that the ability to move is often affected by socio-economic status. This does not restrict itself to the income of an individual or household, rather it can be the fluidity of their assets. With the forcible acquisition of houses and land in the Christchurch context, it is a point of interest as to the effect that other forms of assets will have in deriving mobility patterns.

Resistance to Residential Mobility

Resistance to residential mobility seems common after disaster, a phenomenon which is intensified among home owners (Morrow-Jones & Morrow-Jones, 1991). Mitchell (1976) reported that after the Gediz earthquake of 1970 villages were relocated on geographically safer sites. Many villagers moved into the new houses, stayed for a short time, then returned to the old site to rebuild their damaged homes. Furthermore, in discussing the Halifax explosion of 1917, Dacy and Kunreuther (1969) noted that each resident desired to occupy his old home just as soon as it was made liveable again. Several families even returned before their dwellings were repaired, preferring to live in tents or trailers on their land rather than remain in more temporary accommodation further away.

Exploring these patterns, Oliver-Smith (1982) stated that people appear to resist relocation because it threatens their social and cultural identity, which is often strongly place-orientated. People with attachments to community are likely to resist relocation, and if they are forced to move are more likely to relocate in an area close to their previous residence (Handmer, 1985). In addition to this Mileti & Passerini (1996) argue that resistance to relocation after disaster may be a futile, last-ditch effort to strengthen what remains of the sense of community; "resistance to relocation may be seen and felt as an affirmation of community identity, and a defence against cultural collapse" (pg. 101). This may explain why level of disaster related damage sometimes directly impacts on the willingness of people to abandon their pre-disaster home (Smith & McCarty, 1996). Willingness to relocate is lower when the amount of damage experienced is low (Mileti and Passerini, 1996).

The idea that resistance to relocation is higher when damage is lower is particularly relevant to this study. As explored in Chapter 3, the majority of the participants in this study are being forcibly relocated from homes that are not highly damaged. Raju (2013) highlights the resistance to the relocation of fishing communities in Chennai, India, in a similar context where local government has forcibly acquired land due to public safety concerns. He stated,

> The fishing community expressed strong resistance to relocation at a new site that was considered to be not only very far from the present location, but also too far from the coast. (pg. 1)

He continues, discussing the effects of such a dislocation,

> The debates on relocation have shown that changes in physical capital (in this case, housing) can cause serious disruption in social capital (networks), distancing the community from their natural capital (the coastline), which may have an impact on their livelihood. The community must consider proximity to the coast and the design of their housing, and the connection between the two, in order to be able to make decisions that [positively] affect their livelihood. (pg. 6)

In presenting these experiences of fisherman relocated by government, Raju touches on an important point. When relocation, both short and long term, appears to be forced (or populations have a feeling of 'no control') the ability exists to negatively affect connections to place, culture and community. Much of the literature that has been discussed earlier assumes some form of 'choice' (although this is a contentious choice of word) - with literature suggesting the ability to set some form of threshold before relocation becomes necessary (see Wolpert, 1966). Nevertheless, mobility patterns are often the result of a complex interplay between an individual, the resources they hold, the environment they live in and the disaster itself. Therefore it becomes important to understand the effects that particular mobility patterns have on disaster populations. The final section of the chapter highlights the effect that dislocation, and residential relocation, has on disaster affected populations' health and well-being, and explores whether a relationship exists between these potential ill-effects and subsequent mobility behaviours.

The Effects of Relocation after Disaster on Health and Well-Being

Turton (2006) argues that a forced resettlers' situation is similar to or worse than conflict refugees. In this sense he argues that the relocated population may end up alienated from their government, similar to refugees who have fled their countries (Turton, 2006). In this section I discuss these claims by Turton, and in turn explore previous research findings on the effects of relocation, forced or otherwise. Relocation is often stressful even when the move or transition is planned, anticipated, or a personal choice (Riad & Norris, 1996). Relocation may be more traumatic and stressful, however, when the element of choice is removed and the person must relocate due to natural disaster (Brown & Perkins, 1992). Milne (1977) found that the victims who had permanently left a disaster area were more distressed than those who returned. The literature points out that a range of psychological changes, such as depression, social withdrawal and changes in satisfaction with life (Sanders, Bowie & Bowie, 2003), as well as physical change like increased pain, mental and physical functioning, and

perception of one's health status may occur after post-disaster relocation in adults (Grant, Skinkle & Lipps, 1992).

A study into the effects of post-disaster relocation was conducted by Najarian et al. (2001) in the aftermath of the 1988 Armenian earthquake. Twenty-five women who had remained in Gumri, a city devastated by the earthquake, were compared with 24 relocated survivors and 25 comparison women from an undamaged part of the city. They found that the women in the affected part of the city showed significantly more symptoms of avoidance, arousal, and total post-traumatic stress disorder than the comparison group. Most interestingly, the women in the relocated city had significantly higher depression scores than the women in the earthquake city. From this it is argued that those who are moved outside of the disaster affected area often experienced greater stress (Najarian et al., 2001).

Riad and Norris (1996) state that relocation after disaster contributes to the environmental, social, and psychological stress experienced by disaster victims. Their results, from an analysis of Hurricane Andrew that hit Florida in 1992, indicated that at 6 months post-event, relocation was associated with higher levels of crowding, isolation, and social disruption. Moreover, it also appears that relocation ultimately adds to the psychological stress (or distress) experienced by disaster victims, especially when the displacement is permanent or frequent. For their sample, the ecological stress after Hurricane Andrew was extremely severe. There were a number of occasions when observed effects of environmental stress were stronger among relocatees than among other victims. The research suggests that relocation is "… a stressor that exacerbates the effect of other stressors but is not unduly problematic in the absence of other coping demands" (Riad & Norris, 2006, pg. 179).

There are also a number of documented factors that affect the extent to which relocation causes stress or ill-health. Quarantelli (1985) stated that although home owners are likely to attempt to go back to their old location and rebuild, renters take longer to obtain permanent housing and may never return to the same location. Differences in socioeconomic status may carry over to how

quickly the residents of the shelters find housing, and therefore begin the recovery process. Bolin (1982) found that prolonged stays in temporary housing were associated with persistent emotional difficulties, as were frequent changes in housing itself. Across a variety of environments, high social density (often associated with post-disaster temporary accommodation) is associated with several negative effects, such as the loss of perceived control, unwanted encounters with others, and withdrawal from areas that might lead to social interactions (Riad & Norris, 1996). The type of housing (i.e. rental accommodation) may also influence the stressfulness of relocation. Middle-class families tend to go to smaller family dwellings, whereas the poor end up in public shelters (Quarantelli, 1985). Thus the effects of mobility behaviours are often disproportionally shared across socioeconomic groups.

Relocation may also produce additional social stress for disaster victims. Friends and family can provide short-term shelter for victims, but these arrangements often become stressful after a period of time (Riad & Norris, 1996). Crabbs and Heffron (1981) have shown that the settlement attempt made by people crowding in with friends, and neighbours, often intensifies the feeling of loss and leads to interpersonal problems. After Hurricane Andrew and the Boxing Day tsunami of 2004, relocatees living in poor conditions are said to have fared worse than non-relocatees who lived under comparable conditions (Riad & Norris, 1996; Fernando, 2010). The change in housing conditions, both in the social makeup of people within the home and in the physical make-up of the dwelling, is seen as generally upsetting and has effects on both physical health and well-being. In relocated neighbourhoods, stressful psychological situations and negative mental health effects may result because it is difficult to create new support networks (Quarantelli, 1985).

There also appears to be gender differences in the impact of relocation after disaster. Riad and Norris (1996, pg. 179) state that, “consistent with prior literature, their investigation into relocation after Hurricane Andrew found that women who were relocated experienced more depression than other groups”. Gleser et al. (1981) believed that the women exhibited higher rates of depression

because the men were able to return to work (thus reinstating some aspect of 'normality'), whereas the women had to deal with negative living conditions. This was often exacerbated by the above mentioned effects of temporary housing and loss of personal and social space.

Nevertheless, there is a minority of post-disaster studies that suggest that those who relocatees do not necessarily fare worse than other populations. Gerrity and Steinglass's (1994) interviews with families displaced by the 1985 floods in West Virginia showed that many families who relocated were able to cope reasonably well, with little, or no, adverse effects. Summarising Gerrity and Steinglass's results, Riad and Norris (1996) state that these families "tended to redefine the meaning of material possessions, immerse themselves in recovery activities, and develop new understandings of what is important in life" (pg. 178). It has also been claimed that, despite the loss of social resources, the ability to 'escape' disaster affected areas means that relocated populations often experience a faster recovery period (Najarian et al., 2001).

The literature also appears to argue, in some aspects, there are no variances in the health and well-being of those populations who relocate after disaster and those who do not. Despite highlighting that relocatees experience often more difficult conditions, Riad and Norris (1996) note that in their sample relocatees were not necessarily more prone to social and family difficulties than were other victims. On one hand it has been shown that in relocated neighbourhoods, new social support networks are hard to create (Quarantelli, 1985), but it is possible to speculate that social relationships are hard to maintain for those victims left behind as well. This makes an interesting point that is often unexplored in the literature; it is easy to focus on the health and well-being of those who are forced to move, but the uprooting of community often has immediate effects for those who remain behind also.

Thayer Scudder's Stress and Settlement Process

For the next two sections I have drawn on the work of Fernando (2010), who conducted research into the forced relocation of settlements in Galle, Sri Lanka, after the Boxing Day tsunami in 2004. In many ways the research Fernando conducted is similar to this thesis, in that he investigated the experiences of those relocated by government intervention after disaster. In conceptualising the impacts of forced relocation on health and well-being, Fernando discusses two models that explore the resettlement process, and the resulting loss of resources. The first of these is Thayer Scudder's stress and settlement process.

While conducting various studies on forced resettlers, Thayer Scudder developed a multidimensional stress and settlement process model (Scudder, 2005). The model illustrates the physiological, psychological and social-cultural dimensions of stress that resettlers encounter and have to adapt to. Multidimensional stress is especially prevalent during the physical removal of people from their settlements and in the years immediately following resettlement (Fernando, 2010). Figure 2 illustrates the three stages in the model.

Stage one ('planning and recruitment') deals with activities relating to the pre-resettlement period, such as planning for the removal, rehabilitation and development of the people. In order to make resettlement a success for the displaced individuals, Scudder stresses the importance of early involvement of displaced people in the planning and decision making process. Stage two ('coping and adjustment') begins as soon as the physical removal of communities for resettlement has commenced. During this stage, it could be expected that the living standards of the resettlers will drop, owing to multidimensional stress and the large number of adjustments that take place in order to adapt to the new environment. Moreover, Scudder argues that most of the resettlers, initially, will not exhibit any new behaviour during this period, other than turning inward to reduce their stress. In stage three ('community formation and economic development') the majority of resettlers show risk-taking behaviour by investing in children's education, small business and other assets (Scudder,

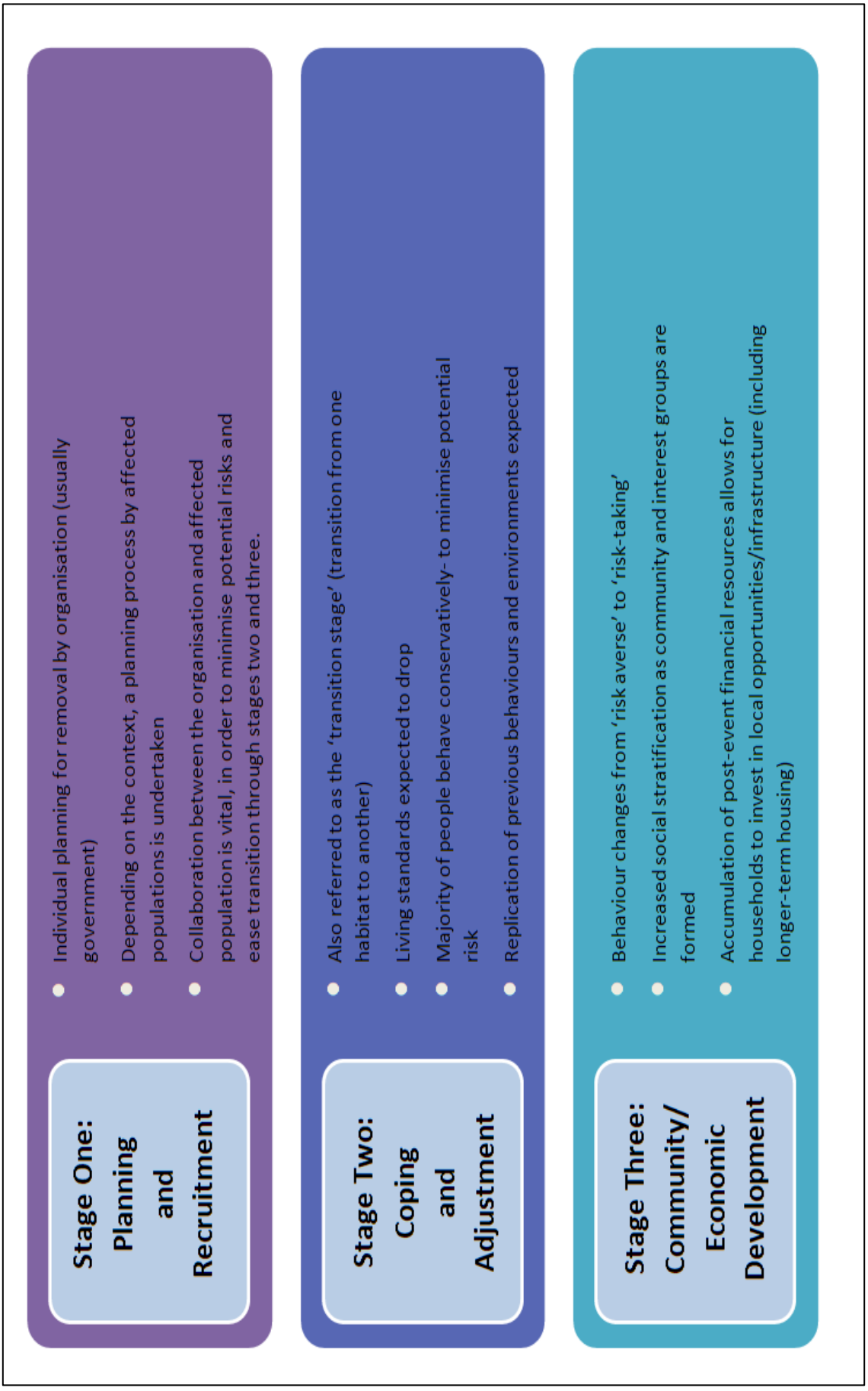

Figure 2: Scudder's stress and settlement process when relocating

2005). These collective activities at the community level and economic development at the household level will eventually not only improve the living standards of resettlers, but also minimize their dependency syndrome.

However, as noted by Fernando (2010), a key weakness of this framework is that it is essentially a model constructed of generalizations. In other words, a wide range of behavioural variations and different socio-economic and cultural backgrounds are associated with relocation in the physical world, rather than homogeneous groups assumed in Scudder's model (2005). Depending on the capabilities of the resettler, some may cope successfully with the multidimensional stress and other issues and problems that arise in each stage, while others may not. As a result, resettlers from one particular disaster event may belong to different stages, which have not been incorporated into the model (Sorensen, 1996). Nevertheless the model stands as an effective way to view the stages, and potential difficulties, involved with relocating in post-disaster contexts

Impoverishment, Risks and Reconstruction Model for Resettling Displaced Populations (IRR model)

The Impoverishment, Risks and Reconstruction Model (IRR) explores the way in which the negative effects of relocation can be monitored and mitigated (Cernea, 2000). The IRR model, created by Michael Cernea, argues that displaced people have a risk of economic, social and cultural impoverishment when they settle in new locations, and that the challenge lies in managing the social actors engaged in resettlement and reconstruction; namely government officers, decision makers, social researchers, and implementation agencies (Cernea, 2000). The model argues that if these actors are not managed effectively the capacity exists for "…negative outcome[s] of resettlement" (Fernando, 2010, pg. 19).

Figure 3: Impoverishment, Risks and Reconstruction Model for Resettling Displaced Populations

The model was created on the premise that when studying the cumulative effects on resettlers after disaster, it is critical to acknowledge that most resettlers have to confront social and economic risks that potentially lead to impoverishment, or the loss of social resources. Considering the general pattern, eight important possible risks that influence one another, and overall resilience, are discussed in the model. However, due to the context of this study I have only presented five of these (joblessness, food insecurity and increased morbidity and mortality are not discussed). These can be seen in Figure 3.

Landlessness refers to the confiscation of people's land. This is seen as a major factor of poverty as populations lose both artificial and natural capital, unless they acquire land elsewhere. Land-based resettlement with technical assistance has been more successful than giving cash compensation for displaced people, which alone is insufficient for them to re-establish their socio-economic basis (Cernea, 2000). In the Christchurch setting landlessness is less about the loss of commercial and productive systems, but potentially rather the loss of a valued resource (that, as discussed in Chapter 5, is perhaps more highly valued in Southshore than other settings). *Homelessness*, on the other hand, closely relates to other risks such as joblessness and marginalization. For many resettlers loss of shelter is for a temporary period only. However, some resettlers have to remain in temporary shelters or camps for longer periods of time until they obtain a house to stay in or complete construction of a new house. The nature of the Christchurch post-earthquake environment (including a 12 month period for red-zone residents to leave) means that this idea of temporary housing may not be applicable. This does not mean, however, that adequate housing will be available for all red-zone movers in the long-term.

Marginalization occurs when families lose economic or political power. Economic marginalization is often accompanied by social and psychological marginalization, which can be identified by resettlers feeling a loss of confidence in themselves and society, a drop in social status, feelings of uncertainty, injustice and deepened vulnerability. Marginalization may be more relevant in the Christchurch

setting in regards to the loss of political power. The red-zone decision itself is highly contestable and those who disagree may identify feelings of injustice and helplessness. *Social disarticulation* occurs when resettlement fragments communities, dismantles patterns of social organization, scatters interpersonal ties with kinsmen and disrupts informal networks with friends and neighbours. The real loss of social capital as a result of relocation has long-term consequences, such as growing alienation and lower cohesion in family structure. Lastly, *loss of access to common property resources* (pastures, forest lands, water resources, etc.) that belong to relocated communities can obstruct income-earning activities. Whilst the idea of lost-income may not be applicable to this study, the loss of the highly valued natural environment around Southshore may lead to feelings of loss and vulnerability.

The main weakness of the IRR model, argued by Scudder (2005), is that it does not deal with the behaviour of resettlers as the key actors in resettlement, even although it discusses various risks they have to cope successfully with, without falling into the category of people who are suffering from impoverishment. Nevertheless, Scudder also gives credit to Cernea's model, stating that it not only makes an attempt to study impoverishment risks systematically, based on forced resettlement (development induced), but it also incorporates necessary resettlement policies to improve the living standards of resettlers (Scudder, 2005). Moreover, Scudder stresses the importance of combining these two models together and broadening them in order to develop a powerful tool for planning and implementing a more successful process of resettling communities and settlements. This can be seen as an important suggestion, as both models have complementary strengths.

It can be concluded that the two conceptual perspectives on forced relocation, irrespective of their weaknesses, are relevant to this study. Of particular note are the various stresses and risks that resettlers have to cope with successfully, and the responsibilities of various actors who are involved in planning and implementation of relocation, to minimise such risks and stresses.

Conclusions

The purpose of this chapter was to present and explore how we interpret human movement, with particular reference to the post-disaster environment. Our conceptualisation of movement has developed over time, progressing from an approach that understood environments as fixed (early studies of migration) to one that contextualises humans in a world of flows (i.e. the mobilities approach). Despite this development, work on mobility in the post-disaster context still draws upon migration theory, particularly when examining movement as an attempt to regain or preserve valued resources.

Understanding the structure and agency debate, on the other hand, allows the evaluation of the extent to which mobility behaviour may be shaped by individual agency or social structures. The debate is particularly relevant to the study of mobility itself, let alone after disaster. If post-disaster movers feel that their relocation decisions are dictated by groups/processes bigger than themselves, they tend to report more negative and stressful disaster experiences.

An analysis of the literature highlights a number of strong, distinct themes in regards to post-disaster mobility, both short and long term. Opportunistic moving, mobility as a coping behaviour and recreation of pre-disaster environments are three significant themes in post-disaster mobilities. Nevertheless such themes appear to be, at least in some way, context specific. This is to say that much of the literature may not be applicable to a disaster outside of the one it investigated, let alone to the Canterbury earthquakes of 2010 and 2011. Where appropriate I have attempted to note aspects of the context of the study that may make its results particularly specific to that disaster. The biggest 'context defining' variables appear to be the socio-economic status of groups affected, and the role of government in forcing or prohibiting movement. Despite this, the majority of post-disaster studies agree that relocation results in a form of dislocation, even if planned. While such movement away from the disaster zone may provide a form of immediate psychological relief,

longer term movement away from a disaster zone potentially results in the loss of social, economic, political and physical resources.

Chapter 3: The Impacts of the Canterbury Earthquake Sequence

> 12.51pm. It sounded like a freight train hurtling towards us. The building lurched up and sideways at the same time. We were inert; anchored by the earthquake's force. Then it tossed us in the air. We levitated a metre above the concrete floor … I was suspended in space, as if levitating on my back. Suddenly the building dropped. I landed on a wooden table. I smashed three ribs. (Parker, 2012)
>
> BOB PARKER, MAYOR OF CHRISTCHURCH

> I remember it clearly. Turning into Colombo Street … the ground seemed to disappear. My car hung in the midst of nothing for what seemed like eternity. Then with a violent thud it began to pitch and roll in such a brutal manner that I was waiting for the car to tip. This went on for maybe 30 seconds … as soon as it stopped there were two or three seconds of silence, before the screams and sirens set in. The streets began to flood as I took in my surroundings. A collapsed air-bridge over Dundas Street … a crushed bus near St Asaph Street … blood on people's faces … it was absolute chaos. (Dickinson, 2013)
>
> SIMON DICKINSON (AUTHOR)

Introduction

The above comments describe two individual experiences during the February 22nd, 2011, quake that struck Christchurch. Both of these recollections reflect upon the damage and impact of the quake on Christchurch. The purpose of the following chapter is to provide a contextual background for the study, including an insight into the effects of both the September 2010 and February 2011 quakes. The previous chapter focused on exploring how disaster movers behaved and relocated in such environments. The objective of this chapter is to illustrate how Christchurch qualifies as one of these post-disaster environments.

The chapter begins by introducing the most significant quake events and exploring the damage that they caused. The chapter then moves to discuss the resulting effects of these events in regards to the response it produced from local and central government. After analysing these responses

(including the creation of the zoning system and understanding documented population movement), the chapter reviews evidence of a 'second disaster' in the Christchurch context (i.e. how the inefficiencies of government disaster response has accentuated difficulties and issues post-quake). Lastly the chapter aims to introduce the study area, Southshore, and explores the post-earthquake environment in the suburb.

The Canterbury Earthquakes

September 4th 2010

The city of Christchurch, New Zealand, was struck by two significant earthquakes in 2010 and 2011. The first was a 7.1 magnitude earthquake on the 4th September 2010. The earthquake was centred 40 kilometres west of Christchurch, near Darfield, and struck at 4.35am NZT. There were no fatalities, although approximately 100 injuries were reported (Stuff Reporters, 2010).

Most of the damage was in the area surrounding the epicentre, including the city of Christchurch. Minor damage was reported as far away as Dunedin and Nelson, both around 300–350 kilometers (190–220 mi) from the earthquake's epicentre. Power was interrupted to 75% of the city, with 10% still not having power by the next day (McSaveney, 2013). Sewer and water lines were damaged city wide, and other forms of infrastructure, such as bridges and treatment plants, were severely affected (see Figures 4 and 5).

Residential and commercial buildings were widely damaged. The worst damage was suffered by older (mainly pre-1940s) buildings constructed of brick and masonry, and lacking adequate reinforcement. Some walls crumbled, with bricks cascading on to the streets and brick chimneys toppled through tile roofs. A number of historic stone churches were badly damaged, although both the Anglican and Catholic cathedrals survived with minor cracking (McSaveney, 2013). An early Treasury estimate of the cost of the earthquake was $4 billion (Hartevelt, 2011).

Figure 4: Damaged bridge from September 4th, 2010, earthquake

Source: Author

Figure 5: Damaged road from September 4th, 2010, earthquake

Source: Author

February 22nd 2011

On Tuesday 22 February, 2011, at 12.51pm Christchurch was badly damaged by a magnitude 6.3 earthquake. The earthquake epicentre was near Lyttelton, just 10 kilometers south-east of Christchurch's central business district. The earthquake occurred more than five months after the 4 September 2010 earthquake, but was considered to be an aftershock of the earlier quake (Johnston, 2011). Since the initial September earthquake Christchurch had experienced over 5,000 aftershocks (Roome, 2013).

In total, 185 people were killed in the February 2011 earthquake, making it the second-deadliest natural disaster recorded in New Zealand (after the 1931 Hawke's Bay earthquake), and fourth-deadliest disaster of any kind recorded in New Zealand (New Zealand Herald, 2011). Over half of the deaths occurred in the Canterbury Television (CTV) Building, which collapsed and caught fire in the quake. The government declared a state of national emergency, which stayed in force until 30 April 2011 (Radio New Zealand News, 2011).

Infrastructure and building damage was far more widespread than the September quake (see Figure 6 for example). Of the 3,000 buildings inspected within the central city by 3 March, 45% had been marked for restricted access because of the safety problems (Omagari, 2012). The earthquake brought down many buildings previously damaged in the September 2010 earthquake, especially older brick and mortar buildings. Many heritage buildings were heavily damaged, including the Provincial Council Chambers, Lyttelton's Timeball Station, and both the Anglican Christchurch Cathedral and the Catholic Cathedral of the Blessed Sacrament (McSaveney, 2013).

Liquefaction was much more extensive than in the September 2010 earthquake (see Figure 7). In eastern sections of the city, which were built on a former swamp, shaking turned water-saturated layers of sand and silt beneath the surface into sludge that squirted upwards through cracks. Properties and streets were buried in thick layers of silt, and water and sewage from broken pipes flooded streets. House foundations cracked and buckled, wrecking many homes (McSaveney, 2013).

The total cost to insurers of rebuilding was estimated at NZ$15 billion (Berryman, 2012). At that point it was already predicted to be by far New Zealand's costliest natural disaster and the third-costliest earthquake worldwide (Murdoch & Fraser, 2011). As Figure 8 illustrates, the February quake equated to a loss of 10% of New Zealand's annual GDP. By April 2013, the total estimated cost had ballooned to $40 billion. Some economists have estimated it will take the New Zealand economy 50 to 100 years to completely recover (Satherley, 2013).

Figure 6: Damage in the central city after the February 22nd quake

(Source: Christchurch quake- first images, 2011)

Figure 7: Road and liquefaction damage after the February 22nd quake

(Source: Yaya Tea House, 2011)

Insurance Perspectives - Recent Major Earthquakes
USD billion (at 2011 prices)

Event Date	Country	Economic Losses (US$billion)	Economic Losses (%GDP)	Insured Losses (US$billion)	Insurance Industry Contribution
11/03/11	Japan	up to 300	up to 5.4%	35	up to 17%
27/02/11	Chile	30	18.6%	8	27%
22/02/11	NZ	15	10.0%	12	80%
12/01/10	Haiti	8	121.0%	0.1	1%
04/09/10	NZ	6	5.3%	5	81%
06/04/09	Italy	4	0.2%	0.5	14%
04/04/10	Mexico	0.95	0.1%	0.2	21%
23/10/11	Turkey	0.75	0.1%	0.03	4%

Figure 8: Insurance costs of recent global earthquakes

(Source: Berryman, 2012)

Subsequent Aftershocks

In September 2012 GNS Science reported that more than 11,200 aftershocks had been recorded since the initial 7.1 magnitude earthquake in 2011. Between September 2010 and September 2012 there had been 54 aftershocks between magnitude 5 and 5.9, and three between magnitude 6 and 6.9. Of particular note was a 6.3 magnitude quake on the 13 June, 2011, that resulted in widespread power outages, liquefaction and 46 reported injuries (New Zealand Press Association, 2011).

GNS Science forecast that in the period October 2012-December 2013 there is a 74 per cent probability of a magnitude 5-5.4 earthquake striking, a 32% probability of a magnitude 5.5-5.9 quake, a 10% chance of a 6-6.4 quake, a 3% chance of a 6.5-5.9 quake and a 1% chance of a 7-7.9 quake (GeoNet, 2013). Overall, the frequency of aftershocks, as well as their strength, has been downward trending (Gorman, 2013).

Population Movement

The Canterbury earthquake sequence has resulted in one of the largest documented population movements -- both temporary and permanent -- in New Zealand's history. As previously mentioned, the resident population of Christchurch decreased by 8,900 (2.5%) people between June 2010 and June 2011 (Statistics New Zealand, 2011).

Love (2011) states that populations tend to return rapidly to the site of a disaster after the event, particularly if drawn by ties of home ownership and family. It is expected that large numbers of people moved in and out of Christchurch in the weeks that followed the February earthquake (Nissen & Potter, 2011). The predicted long term effect on population is a 2.4% decrease, approximately 10,000 people (Love, 2011). However this is currently being offset by a large influx of migrant workers; 4000 have settled in Christchurch in the period January-July 2013 (Chang-Richards, Wilkinson & Seville, 2012).

Nissen and Potter's (2011) analysis of cell phone data over the first six months of 2010 and 2011 indicated that a much larger proportion of voice calls were made from outside the city in the week after the February 22nd earthquake. This is illustrated in Figure 9. Their data suggest that around 15% (55,000) of the usual Christchurch population are likely to have left the city over this week. However, although the number calling from outside the city in March 2011 continued to be greater than that in the same time in March 2010, a month after the earthquake the weekly 2010 and 2011 patterns appeared to be relatively similar (Newell, Beaven & Johnston, 2012). This suggests that the immediate flight phase had stabilised at that point (note that Easter calling spikes on April 24th in 2011, but was later in the year in 2010). In addition, cell phone data suggests that those who relocated temporarily to other South Island destinations returned to Christchurch city sooner than those who made temporary moves to North Island destinations (Nissen and Potter, 2011). Figure 10 highlights that these South Island movements tended to be southward (to Otago), whilst movers to the North Island largely moved to Auckland and Wellington respectively. Meanwhile, call data presented in Figure 11 highlights a distinct westward movement of those who moved outside of Christchurch, but within Canterbury.

Price (2011) noted that postal redirection data also indicated a high degree of post-event movement inside the city, with approximately 20,000 residents redirecting mail to an alternative Christchurch address, compared with the approximately 5,000 who redirected mail to an address outside Christchurch. The majority of forwarded mail came from an address either in the centre or to the east of the city, and the forward address pattern illustrates a distinct northward/westward flow.

The permanent and long term (PLT) migration data showed a high percentage increase in departures in the age range 0-15 (Lafferty, 2011). This is consistent with school enrolment data over this period, which showed a net drop of around 3,500 in school enrolments in the greater Christchurch area between 2010 and 2011 (Johnston, Beaven & Wilson, 2011). The migration data also shows a larger net loss of women than men (Newell, 2011). A Ministry of Women's Affairs survey indicated that

70% of the fall in employment after the February quake involved female employment, and estimated that 5,100 women had left the work force, compared to 1,000 men (Newell, 2011).

PLT migration data, taken from arrival and departure cards filled out by those arriving and departing on international flights, reveal that both the September and February events were followed by a significant fall in international arrivals (Lafferty, 2011). This is illustrated in Figure 12, where net migration falls immediately after the February event and subsequent major after-shocks. A 22% rise in international migrant departures from Christchurch in 2010-11 has furthermore highlighted the effect that natural disaster has on population movement. Accelerated population growth in the areas of Selwyn, Queenstown-Lakes, Ashburton and Waimakariri has highlighted the regional implications of such an event (Statistics New Zealand, 2011). The population of Timaru swelled by 20% immediately after the February quake (McSaveney, 2013) and cell phone data (Nissen and Potter, 2011) show the largest number of calls made from outside of Christchurch after the February quake were from Otago (Newell, Beaven & Johnston, 2012).

To further understand the impact of these quakes on population movement, an introduction to the Canterbury Earthquake Recovery Authority and the zoning system now follows.

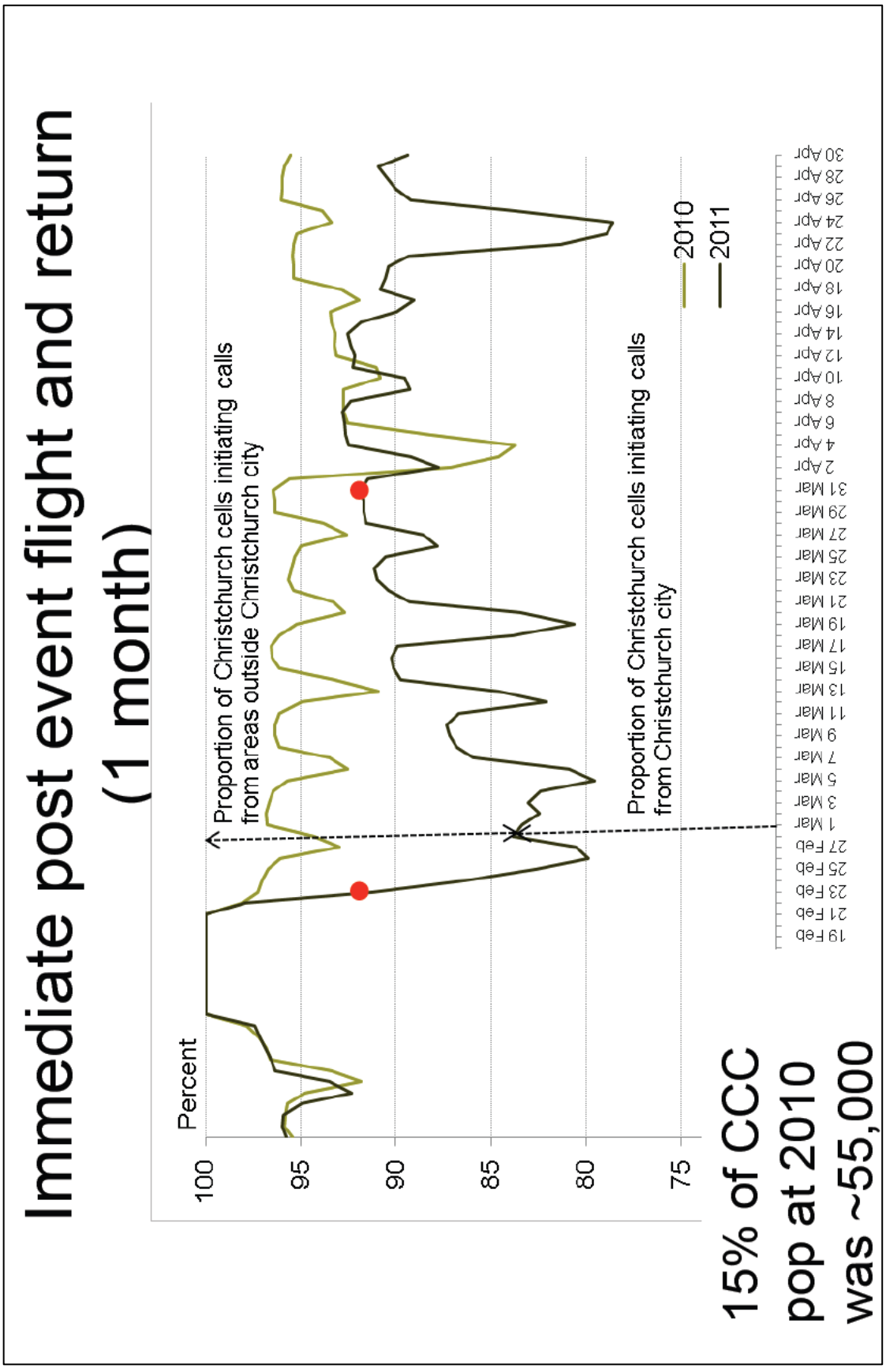

Figure 9: Phone calls made from inside and outside of Christchurch in 2010 and 2011

(Source: Nissen & Potter, 2011)

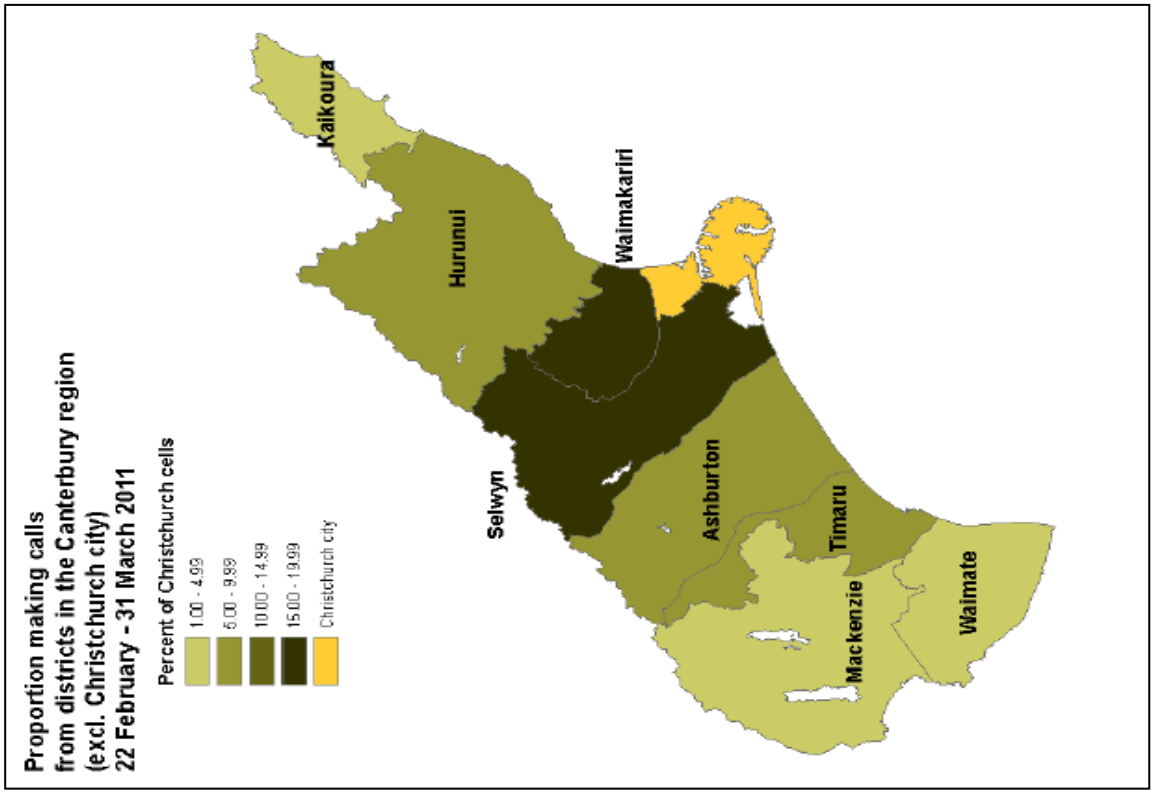

Figure 11: Proportion making calls from within Canterbury

(Source: Nissen & Potter, 2011)

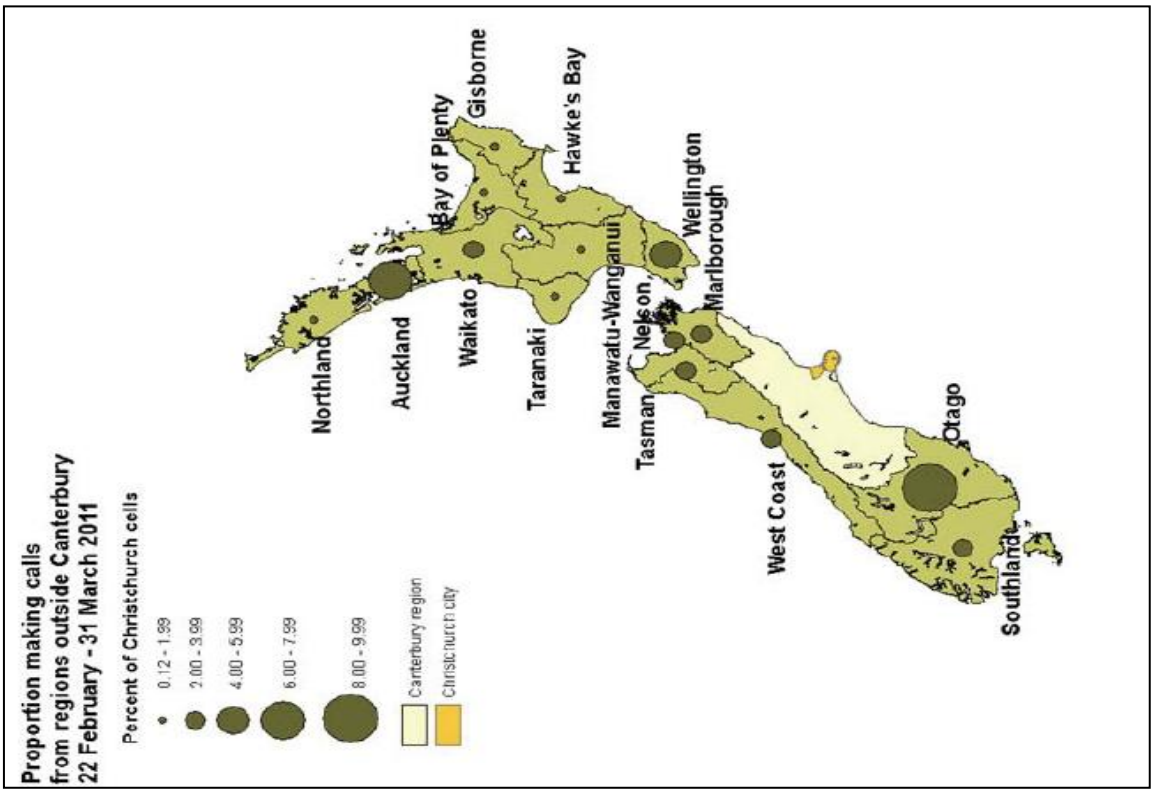

Figure 10: Proportion making calls from outside of Canterbury

(Source: Nissen & Potter, 2011)

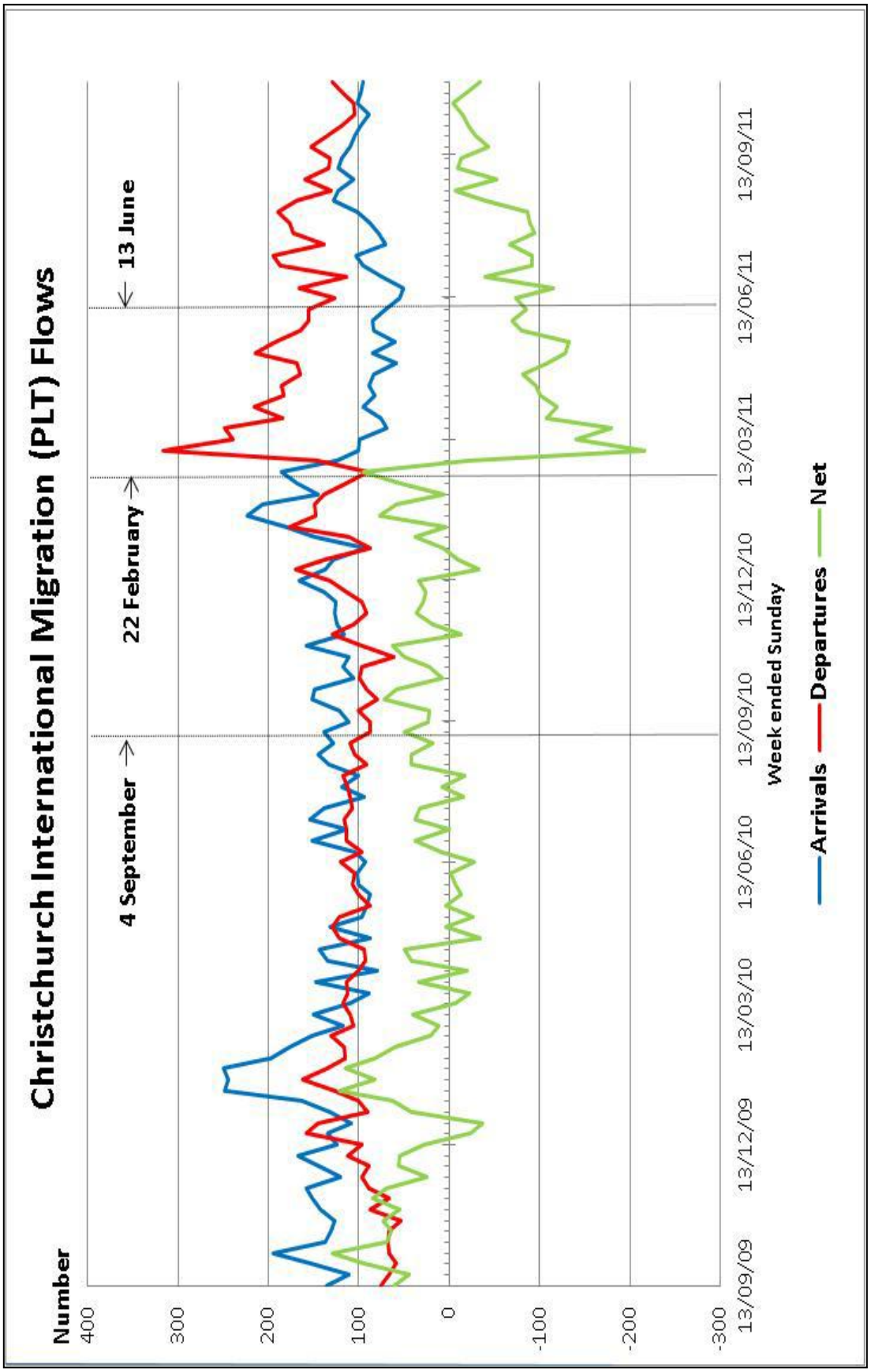

Figure 12: Christchurch international migration flows between 2009 and 2011

(Source: Lafferty, 2011)

The Canterbury Earthquake Recovery Authority

In 2011 the Canterbury Earthquake Recovery Authority (CERA) was established by the government as the "agency established by the Government to lead and coordinate the ongoing recovery effort following the devastating earthquakes of September 2010 and February 2011" (CERA, 2012). CERA reports to the Minister for Canterbury Earthquake Recovery, Gerry Brownlee, who has been allocated "special powers … in order to enable an effective, timely and co-ordinated rebuilding and recovery effort" (CERA, 2012). These powers include the ability to authorise temporary building on public and private land, acquire and dispose of land, enter onto land, order demolitions, restrict access, change land titles and survey information (with and without consent), assume regulatory management, direct that action be taken or stopped, suspend, amend, cancel or delay council plans, and prepare a recovery strategy and plans (CERA, 2012).

Whilst CERA's initial focus was ascertaining the immediate safety of Christchurch buildings, the mid-term recovery period has seen a shift towards the acquisition of land and property for the rebuild period. Figure 13 outlines the roles and responsibilities of CERA, the Christchurch City Council and other local authorities and agencies after Saturday 23 April 2011, when the national state of emergency was lifted. As discussed in the next section, it is important to note the increasing presence of central government (i.e. CERA, EQC and government departments) in many local activities. Whilst the creation of CERA has allowed for a more effective mobilization and utilization of resources (for example see Steeman, 2012), the influence of central government has been highly contentious.

Decision making	Organisation responsible
Governance	CERA / Christchurch City Council
Council decision making	Christchurch City Council (CERA)
Recovery strategy, policy, planning	CERA
Mayoral fund	Christchurch City Council

Infrastructure	Organisation responsible
Coordination and planning	CERA
Water and waste issues	Christchurch City Council
Portaloos and chemical toilets	Christchurch City Council
Roading and traffic management	Christchurch City Council
Water conservation / restrictions	Christchurch City Council
Laterals (drain-layers)	Christchurch City Council
Power	Orion

Planning / Deconstruction	Organisation responsible
Individual commercial building inquiries	CERA / Christchurch City Council
Individual residential building inquiries	Christchurch City Council / CERA
Cordons (within four avenues)	CERA
Business communications	CERA / Councils
Access schemes (business, temporary and residents)	CERA – still issued at same site (portacoms at the Christchurch Art Gallery)
Earthquake prone building policy	Christchurch City Council
Demolitions	CERA
Heritage	Christchurch City Council
Debris management - demolition	CERA
CBD Business cleaning	Christchurch City Council
Cashel Mall Restart	CERA
LIMs and PIMs	Christchurch City Council

Economic Recovery	Organisation responsible
Economic recovery coordination	CERA
Skills/workforce planning	CERA

Insurance	Organisation responsible
Insurance claims	EQC / Insurance Companies
Insurance issues	EQC / Insurance Council / Companies

Individual projects	Organisation responsible
Land remediation	EQC
Land zoning	CERA
Hillside suburbs	CERA / Christchurch City Council
Central City Plan	Christchurch City Council

Figure 13: Organisational roles after the February, 2011, earthquake

(Source: CERA, 2013)

The Zoning System

One of CERA's immediate tasks was to implement a comprehensive zoning system after the earthquakes. The focus was to initially determine the safety of commercial and residential buildings. Buildings were categorised (or 'stickered') red (no access), yellow (restricted access) or green (no restriction on access) once the structural safety of the building had been ascertained.

Following the February earthquake a 'CBD Red Zone' was established and cordons were placed around the 'four avenues' (Deans, Moorhouse, Fitzgerald and Bealey) and central city south. This effectively shut down the central city, and restricted public access within the 'four avenues'. By March 2011 in the Christchurch CBD alone 755 buildings had a red sticker, 909 had a yellow sticker and 1266 had a green sticker. In the weeks that followed the cordon underwent a number of changes. By mid-July 2011 the CBD red zone was one-half of its original size, and was completely removed on the 27th June 2013 (CERA, 2013).

On Thursday 23 June 2011, Prime Minister John Key and Canterbury Earthquake Recovery Minister Gerry Brownlee announced the way in which residential land would be zoned in Christchurch. The system zoned land based upon its capability to house residential construction (considering potential future damage from further earthquake and flooding risks). Advice from geotechnical engineers saw all greater Christchurch land divided into four residential zones – red, orange, green, and white. At the time of the announcement around:

- 5,000 residential properties were in the red zone, where it was not feasible to rebuild on the land at the present time
- 10,000 properties were in the orange zone, where engineers needed to undertake further investigations
- 100,000 properties were in the green zone, where homes could be repaired and rebuilt, and
- the white zone were areas that are still being mapped or are non-residential.

As of June 2013 approximately 6,000 houses were red-zoned. The orange zone has now disappeared, although there are still homes left in the white zone on the Port Hills. These are soon to be decided after the results of rock-fall hazard testing is released (Greenhill, 2012). Figure 14 illustrates the areas zoned in the different categories. The red-zoned areas are largely coastal or in close proximity to the Avon River. These areas are more prone to liquefaction, built on damp, sandy soils, and therefore sustained the largest amount of damage, and pose the greatest risk in future events. Appendix A provides an in depth explanation of the reasoning behind the red zone.

Figure 15 explains the difference between the zones, particularly as there are different categories within the green zone itself. It is important to note that this zoning system is concerned with damage and risk to land, rather than property. The zoning of land has major implications for land-owners, particularly in regards to insurance pay-outs on both land and property. Some of the issues with this zoning system are explored in the next section.

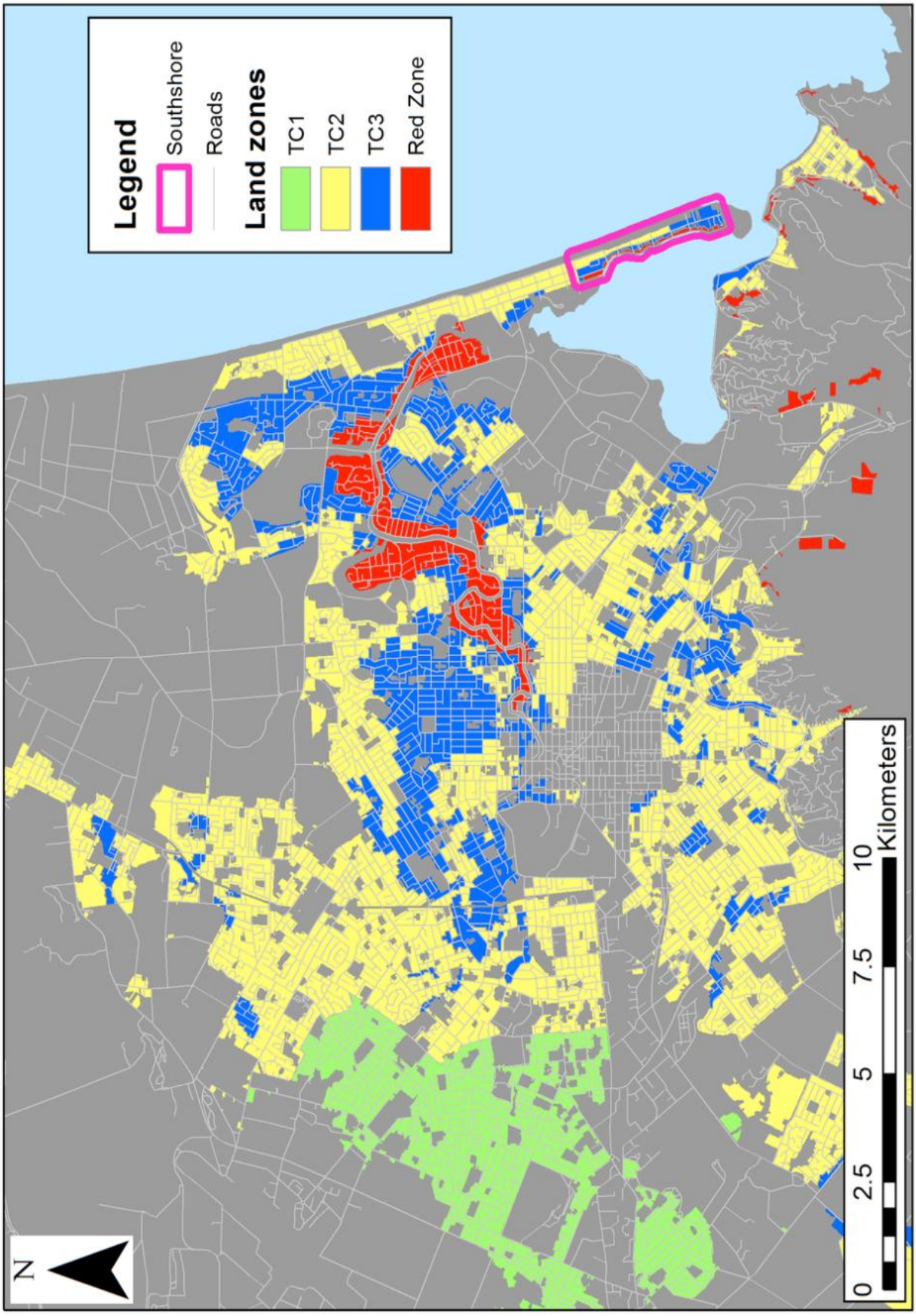

Figure 14: Christchurch land zone decisions

Green TC1	These areas are generally considered to be suitable for residential construction. Future land damage from liquefaction is unlikely.
Green TC2	These areas are generally considered to be suitable for residential construction. Minor to moderate land damage from liquefaction is possible in future significant earthquakes.
Green TC3	These areas are generally considered to be suitable for residential construction. Moderate to significant land damage from liquefaction is possible in future large earthquakes. Site-specific geotechnical investigation and specific engineering foundation design is required.
Red Zone	Areas in the flat land residential red zone have area-wide land and infrastructure damage, and an engineering solution to repair the land would be uncertain, costly, and is likely to be highly disruptive.
White Zone	Land classified as white meant that complex geotechnical issues relating to land slip and rock-roll required further assessment and observation before land decisions could be made.
Orange Zone	Land classified as orange meant that engineers needed to undertake further investigation.

Figure 15: Explanation of CERA land zone categories

The Current Housing Market

Earthquake damaged housing and the creation of the red zone has inevitably led to a pressure on the housing market in Christchurch. An increase in demand for new housing, and a reduction in supply of existing houses (dues to earthquake damage) had ultimately affected housing prices in Christchurch and its hinterland. House prices in the city are at record levels, with the median (mid-point) price for the city reaching $383,000 in February 2013 (McDonald, 2013). As illustrated in Figure 16, this is an increase of 9.4 percent compared to the same point in 2012. There are well-publicised cases of these market pressures leading to people living in substandard housing (Turner, 2013), of a backlog of people requiring Housing New Zealand properties (Dally, 2013) and of people unable to find rental properties (Berry, 2012).

There were difficulties in finding accommodation for workers involved with the rebuild to live in (Carville & Turner, 2012). In particular there appeared to be a shortfall in lower cost housing (these tended to be more damaged in the earthquake), and figures showed the average rent in Christchurch had risen 26 per cent between the last quarters of 2011 and 2012 (McDonald, 2013). Nevertheless, CERA believes that the perception of a 'housing crisis' as such is unwarranted. Despite the documented issues, CERA refuses to use the term 'crisis' and property managers believe that market rumours are creating unnecessary panic (Turner, 2013).

The government states that the pressure on Christchurch's housing market should ease within the next three years (Berry, 2012). In November 2012, Canterbury Earthquake Recovery Minister Gerry Brownlee ordered Environment Canterbury (ECan) to create a recovery plan to override existing land-use plans in Greater Christchurch, Selwyn and Waimakariri (Young, 2013). An expected 30,000 sections will come on the market as a result of Environment Canterbury's land-use recovery plan (Young, 2013). Figure 17 illustrates the plan's provision for sufficient green-field land to match the demand for new homes.

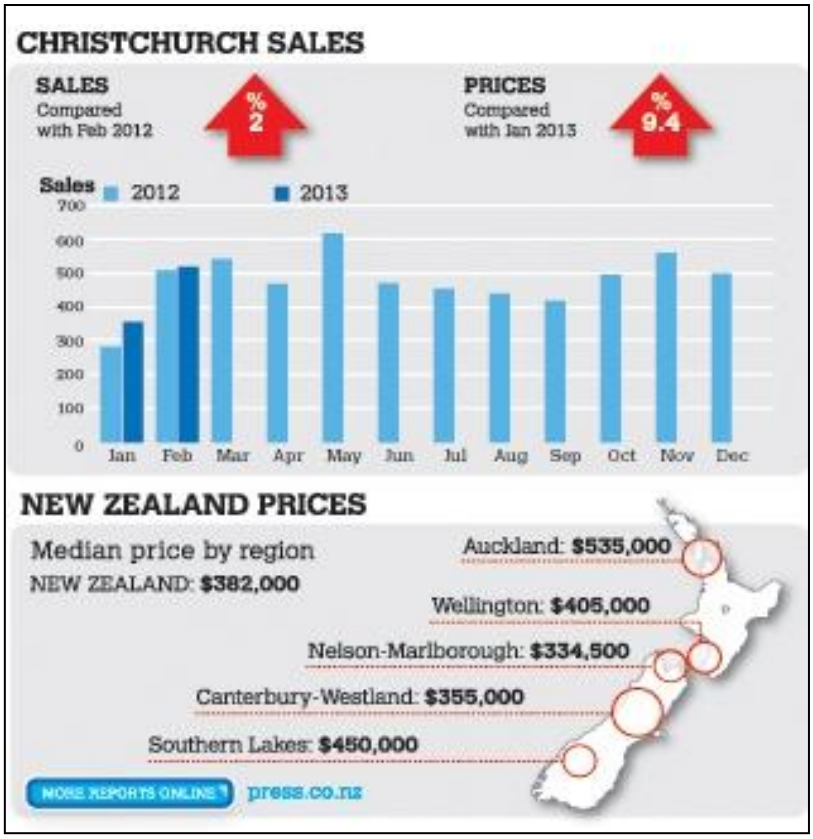

Figure 16: Christchurch house prices in July 2013

(Source: McDonald, 2013)

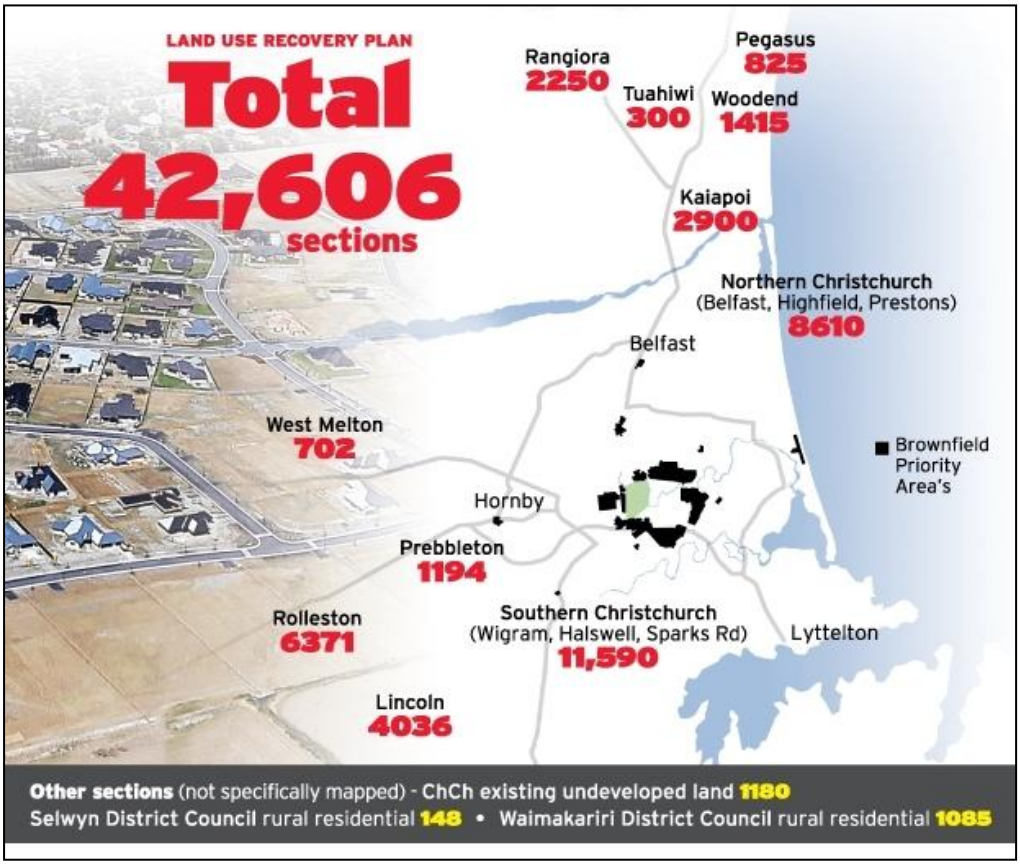

Figure 17: Availability of residential sections through the Land Use Recovery Plan

(Source: Young, 2013)

Christchurch's 'Second Disaster''

In 2013 a Christchurch lawyer documented what she called the 'Christchurch fiasco' (Miles, 2012). The 'fiasco' referred to the failure of private sector insurance companies and government to provide the support and aid they were required to give. She stated,

> 'Christchurch' has become an on-going saga about an unprecedented catastrophe, with a population largely left to wallow in its own misery. After some months of researching this sorry state of affairs, a story emerges of incompetence, dishonesty, professional vested interests, cynical corporate greed and government complicity and self-service…It is clear the manipulation of a community trickles down from the top of the ladder to the bottom; the power of the few is being exerted over many. (pg. 211)

In this excerpt Miles explores some of the difficulties and misgivings that earthquake affected populations have had with both governmental and private organisations. In many ways the recovery and reconstruction periods have become more publicised than the earthquakes themselves. The February 11th earthquake was calculated to be the third costliest insurance event in history (Greig, 2012). As such it can be expected that a number of actors are involved in both the funding and decision making processes during the recovery. The Christchurch context has highlighted the impact that these actors can have on those affected by the natural disaster. This has led to a number of issues that have not emerged as a result of the natural event itself, but by the way in which its aftermath was managed and resourced.

CERA, EQC and the Government Response

The Ministry of Civil Defence & Emergency Management (CDEM) initiated an independent review of the Civil Defence Emergency Management Response to the February earthquake. The Ministry generally debriefs and reviews the response to any significant emergency. In this case, given the scale of emergency and being the first time that New Zealand had declared a state of national emergency, the review was conducted independently. The outcome stated that emergency services were "well-managed and effective" (McLean et al., 2012, pg.10). It also found that initial local and

central government response strategy was sound, emergency services responded rapidly, and that technical aspects of inspecting damaged buildings were performed well.

However the review also noted that the need existed to promote better connection between the official emergency response and local communities. The review stated that the duplication of control "… between Christchurch city [council] and the regional [civil defence group] was not only inefficient but put people and property at risk" (McLean et al., 2012, pg.16). This was coupled with initial complaints that stated that emergency service and Civil Defence Emergency Management failed to make contact with the worst affected areas. Residents from a number of eastern suburbs stated that, in February, services such as port-a-loos failed to reach them (Wall, 2011). It appears as though that this gap was filled by local businesses and volunteers (Donoghue, 2011).

The introduction of CERA into the recovery environment has also caused a number of well-documented problems. The process in which land was zoned has come under heavy scrutiny. The creation of the Canterbury Earthquake Response and Recovery Act 2010 permitted Government ministers to suspend or make exemptions to almost any New Zealand law, transferring significant lawmaking power from the legislature to the government executive. Many residents felt this was an abuse of power, and shifted control away from local council towards Gerry Brownlee and CERA (for example see Hartevelt, 2011a). A legal case, submitted in May 2013, argued that "Mr Brownlee's decision to establish red zones was unlawful and 'obliterated' the market value of their properties" (Bayer, 2013). The outcome of this case, published in August 2013, stated that some red zone decisions were "not made according to the law" (APNZ, 2013). This, however, did not affect the Southshore red-zone.

The 2012 review also recommended that local authorities, such as the Christchurch City Council, should no longer have the power to control emergency responses (McLean et al., 2012). It argued that control should be handed to central government, and national level organisations, such as CDEM. This, combined with lengthy delays in zoning announcements, an apparent lack of

transparency and, more recently, the removal of local council from processing consents has led to widespread suspicion and distrust of central level organisations involved in the Christchurch recovery.

The September earthquake also saw the utilisation of the Earthquake Commission (EQC). Established in 1945, EQC provides primary natural disaster insurance to owners of residential properties in New Zealand. Residents automatically have EQC cover for their home and land if they have a current private insurance policy for their home. In the event of an earthquake, EQC cover entitles the holder up to NZ$100,000, with any further damage to be covered by the homeowner's insurance company (Earthquake Commission, 2013).

Issues with EQC are widespread and well-publicised (for example see Wright, 2012). Many of those assessed for damage by EQC have laid complaints and asked for claims to be re-evaluated (the numbers of complaints are not publically available). Residents have had issues with the staff themselves (often drafted in on short notice from Australia), the quality and timeliness of inspections and the significant delays in paying out claims (Cooper, 2012). Lack of information and transparency is another well-documented issue (for example see Van Beyen & Wannan, 2013), and many have been denied the right to look at the information gathered by assessors on their homes. A blogger who leaked EQC information to the public stated,

> Over the past several years, *weltschmerz* [German word meaning 'world weariness'] has spread through Christchurch like a leprotic plague. The botched EQC effort and the unwillingness of anyone in the New Zealand government to take ownership of the disaster are undoubtedly wreaking havoc on the psyches of people in Christchurch. Meanwhile, people in Christchurch suffer, not from a natural disaster, but rather, from a man-made bureaucratic disaster. No one in a position of power wishes to take ownership and everyone that could conceivably bring about some change is too busy sticking their heads in the sand or benefiting from ruling that they do not wish to rock the boat. ("EQC Truths", 2013)

In many ways these comments reflect an almost tangible mood within Christchurch. While the earthquakes themselves have faded into memory for many, animosity towards CERA and EQC still dominate the news headlines three years on. However, criticism is not limited to the government. The role of private sector insurance companies, and the private sector more generally, has also attracted attention within the recovery and rebuild process.

The Private Sector

The private sector, and in particular insurance companies, have been heavily criticised after the Canterbury earthquakes. In 2011 AMI Insurance, holders of 35% of insurance policies in Christchurch, nearly collapsed. Insurance companies, widely believed to be increasing profits by under-insuring themselves (Clement, 2013), were faced with an unprecedented volume (numerically and financially) of claims. AMI, in particular, was unable to cope with the shortfall caused by their lack of re-insurance. Only a government bail-out of over NZ$1billion resulted in earthquake claims being honoured by the embattled company. In many ways this was representative of the problems that were to come, particularly as insurance companies faced internal battles, at what appeared to be, at the customer's expense.

Christchurch lawyer Sarah Miles explored some of the issues that followed, stating,

> What is repeatedly happening in Christchurch is many insurers denying and reducing policyholders' claims, routinely refusing to pay market prices for homes and replacement of contents, use of "low-pitched" computer programs to cut pay- outs, changes of policy coverage with no clear explanation, ignoring or altering engineering reports, and sometimes asking their adjusters to slow down claim progress or lie to customers.
>
> Then the insurers make low offers, or refuse to pay at all. They stall until claimants are so desperate that they are then prepared, or forced by circumstances, to accept what the insurer offers them. Customers who try to take a harder line with them are subjected to even more delay and are then offered a "take- it or leave-it" deal. (Miles, 2012, pg. 114)

Whilst using particularly emotive language, Miles touches upon some of the key concerns that have emerged as earthquake affected residents seek to have their claims paid out. Insurance companies have been accused of secretly entering information into policies and deliberate slowing down of claims processing (Miles, 2012). However, perhaps the most synonymous issue with insurance companies in the Christchurch environment has become the issue of 'repair versus rebuild'[1]. Houses are deemed 'repairs' if the insurance company believes the property is financially viable to repair. If this is not the case then the homeowner is paid a sum of money for the house to be rebuilt.

However issues have arisen when the level of damage required for a house to be a 'rebuild' has increased. Whilst the insurance industry attributes this to a deeper understanding of what can be fixed, many believe this is a cost saving measure. This argument is particularly relevant to those in the red-zone. As the zoning decisions decided by CERA are concerned with land damage, the houses on the land may not necessarily be damaged. This ultimately means that a resident may be forced to leave their home due to land damage, receive payment for the land through EQC, however will only receive payment for the total amount of damage in their house; essentially leaving them out of pocket for the house itself.

As the claims process continued insurance companies began to withhold the 'repair or rebuild' decision until zoning decisions were released. In Southshore a number of homeowners were informally told they would be offered 'rebuild' value from their insurance company, only to find that after they were red-zoned this moved to a much smaller 'repair' value. For one participant in this project the amount decreased by $320,000 once the red-zone decision was released. To the public it appeared as though the red-zone offered a 'get out of jail free' card for the cash-strapped insurance companies.

[1] Please note this refers to property, whereas CERA zoning refers to land

To many these issues represent the failure of the private sector in post-disaster recovery. CERA has attempted to intervene by offering to purchase properties at the 2007 rateable value, but many still see this as less than what their property is worth. Whilst it is impossible to document all of the issues, it is important to identify that this 'second disaster' affects the ability of residents to move on from such an event.

Now that some of the more publicised post-quake issues have been discussed, the section moves to briefly describe the study area, Southshore. Households in Southshore have experienced a number of the issues explored in this section, as well as more specific issues with the zoning announcements. The next section will therefore explore the characteristics of Southshore pre-quake (as this is relevant when considering housing choice pre and post disaster) and then examine both the damage and issues faced in the post-earthquake environment.

Southshore

Southshore History and Development

The participants for this research were all residents of the suburb of Southshore, in eastern Christchurch. The area defined as Southshore is often contentious. For the purpose of this study when using the term 'Southshore' the author is describing the area from Halsey Street in the north, south until the tip of the spit (i.e. combining 'Southshore' and 'Southshore West' in CERA documents). CERA have labelled the area defined by Caspian Street in the South to Halsey Street in the North, west of Pine Avenue, as Southshore West in official zoning documents (CERA, 2012b). This is illustrated in Figure 18 (Halsey Street is the northern most street in the selected area, running east to west, whilst Rocking Horse Road runs down the centre of the spit)

Southshore is a dynamic area, both in terms of its physical and social environment. The suburb is located on the Brighton Spit, an area synonymous with the coastal Christchurch landscape. Figure 19 presents an aerial view of the suburb, with Mt Pleasant and Sumner in the immediate foreground,

and the central city to the north-west. The original Waitaha name for the Brighton Spit area was Te Karoro Karoro (the seagulls chatter). Later it was known as Kaiaua, which literally means to eat yellow-eyed mullet or herring. The Brighton Spit was formed from sand carried to the coast by the Rakahuri (Ashley) and Waimakariri rivers building up along the shore via long-shore drift. The sand formed a spit between the Avon-Heathcote Estuary and the South Pacific Ocean. The spit has been subject to the powerful processes that created it. Significant erosion was reported in 1918-22, 1930-37, and 1940-49. During the period 1940-46 the end of the spit was eroded northward by 350m and a further 150m from 1946-49 (Rowlands, Moore & Osborn, 2006). The establishment of over 180ft of groyne has since lessened the extent of this erosion, although the southern tip is still dynamic.

Residential development on the spit, compared with the growth of Christchurch, has been relatively recent. In 1948 there were only 7 reported buildings on the spit. By 2006 there were over 600 (Rowlands, Moore & Osborn, 2006), and with the suburb extending further north for the purpose of this study, the number of properties is closer to 1000. At a meeting in 1967 a local resident noted that "most noticeable has been the rapid development in home building and the inflated land values … The advent of sewage [systems], although not completed yet, has stimulated land development" (Rowlands, Moore & Osborn, 2006, pg. 51). In this time (1950-1967) the suburb had infrastructure built to, incrementally, supply electricity and high pressure water. After 31 years of development Rocking Horse Road, the main road down the spit, was completed, along with footpaths and a storm drainage system.

The area is known for its access to both the beach and the estuary, with good opportunities for bird-watching, fishing and other activities, such as the Farewell to the Godwits ceremony. Figure 20 illustrates a view of the estuary, looking towards Christchurch city. The spit has become particularly popular with local photographers and dog-walkers. However, the area is regarded as largely residential and utilisation of the natural environment would be lower than Brighton Beach and Sumner (something that the residents are largely happy with).

Figure 18: Southshore, Christchurch

Figure 19: An aerial view of Southshore and the Brighton Spit, pre-earthquake

(Source: Respondent's personal image)

Pre-earthquake Southshore was a largely affluent area of Christchurch. For people aged 15 years and over, the median income in South Brighton is $26,300 (this is the census area unit that includes Southshore). This compares with a median of $23,500 for all of Canterbury Region. This census data includes an area north of the study area, and it is expected that the median income south of Halsey Street is in fact higher than this. The suburb is ethnically homogenous, with 82.5% of the population classified as New Zealand European (compared to 77.4% Canterbury wide). House ownership is also significantly higher than the rest of Canterbury (68.5% compared to 59.8%), suggesting a relatively stable population (Statistics New Zealand, 2009). The 2011 census was not conducted however, due to the earthquake, and this data may not represent an accurate picture of the suburb.

Figure 20: A respondent's view from their property front (Christchurch city in the distance)

(Source: Respondent's personal image)

Southshore and the Earthquakes

Southshore provides an interesting insight into the effects of both the earthquakes themselves, and the resulting action by government and the private sector. The suburb was hit relatively hard after both the September and February earthquakes, with extensive liquefaction along the streets and in many properties. Sewage lines into the area were broken, and much of the community relied on the availability of port-a-loos in the immediate and mid-term aftermath. Roads were extensively damaged, especially Rocking Horse Road, and visible subsidence of land into the estuary can be seen (CERA, 2012a).

Despite the infrastructure damage, property damage appears to be less widespread than with other red-zone areas. Whereas residents of areas such as Avonside were facing red-zone and replacement value for their properties, the majority of participants in this study reported that insurance companies assessed the damage to their properties as less than the $100,000 threshold. This has

caused widespread anger and concern, and many of the issues highlighted above are prevalent in the community. Extensive strengthening work had been undertaken by many of the houses on the estuary side of the spit to counter erosion and potential flooding risk, which may explain the lower reported levels of damage. Nevertheless, a number of houses still reported high levels of damage as a result of the quakes.

Southshore was one of the last areas to receive a formative zoning decision from CERA. The entire suburb was initially put into the orange zone before the beach side (the east side of the spit in Figure 18) was zoned green on 29 October 2011. In August 2011, residents were informed that they could expect a land zoning decision within six weeks. Later that month, it was announced that the decision would be released in September. In mid-September, the decision was delayed due to unexpected complexities. On 12 October, Gerry Brownlee, as Earthquake Recovery Minister, apologised for the delay and asked for another two weeks of patience.

In November, Brooklands (a suburb in the east of the city) was zoned red, but the decision for Southshore was further delayed. In mid-December, Brownlee wrote to residents, stating that a decision would be made 'prior to Christmas'. On 23 March 2012, land zoning decisions were made for the remaining areas of Linwood, Richmond and the Avon Loop within the Central City, while Brownlee wrote to the 401 Southshore home owners stating that they should have a decision during April. By the end of April, Roger Sutton as Chief Executive of the Canterbury Earthquake Recovery Authority issued an apology to residents for further delays (CERA, 2012b).

A zoning decision was released publicly in May, 2012. Residents were informed via letter (see Appendix B) as to the outcome of their land. The decision saw Southshore split into ‘sides’. The beach side was labelled green (a mixture of TC2 and TC3), whilst much of the strip on the estuary side of the spit had been deemed red. As Figure 21 shows, this red zone extends north until almost Halsey Street. While the red-zone is relatively small (198 houses), the different zoning outcomes in such a small area is unprecedented within the Christchurch environment. In some cases people

sharing the same driveway had different zoning outcomes. Appendix C shows an example of a government offer for these red-zone properties.

This May 2012 decision confused and angered many. A number of the red zone homes appeared to suffer minimal damage, often compared to homes in TC2 and TC3 zones. Figures 22-25 show some of the damage to properties in Southshore that, while damaged, fared better than many homes in other parts of the red-zone. The feelings surrounding this issue will be explored in Chapter 5. Many in the area could not understand either the time taken to make such a decision, or the reasons why the boundaries were placed as such. A local resident, in an official information act request to CERA stated,

> Given that no CPT[2] testing had been done at all in that block of Estuary Road when the zoning decision was made, I cannot see how you can state 'the key factor in declaring an area as green zone was whether individual foundation solutions were feasible for the particular ground conditions' … While CERA have made it abundantly clear they will not overturn any zoning decision, I do believe a public decision making body has an incumbent responsibility to explain how and why the decision has been made in a particular situation. This is particularly so when people and communities are so significantly affected. (For Your Information, 2012)

However CERA had a number of public workshops, and presentations to explain the reasoning behind the particular pattern of zoning. Jan Kupec, CERA chief geotechnical engineer, explained that,

> Southshore was already considerably damaged by the September 2010 earthquake … Rocking Horse Road to the west suffered further extensive damage in the February quake. The area is geotechnically complex, with the sea on one side and the estuary on the other. Southshore is part of the area where the northern part went down, due to tectonic uplift, and the southern area was brought up with the Port Hills. The fault that ruptured in

[2] A Cone Penetration Test (CPT) is a method used to determine the geotechnical engineering properties of soils and delineating soil stratigraphy.

> February would have in part gone through Southshore. In the area of Southshore we actually have some of the worst lateral spreading in Christchurch, where the land sort of slides on the liquefied material … so summarizing the damage in Southshore … we have severe movement and a thin crust … that has resulted in massive lateral spreading to the west of Rocking Horse Road [the area which is now red-zone]. (CERA, 2012a)

The liquefaction that Kupec discusses can be seen in Figure 23. As well as disagreement with Kupec's explanation of the zoning, concerns have been raised with insurance companies arguing for a repair settlement, as opposed to paying out for the replacement. Some of their stories and experiences are explored in Chapters 5 and 6.

In May, 2013, Southshore properties received a two month extension to the date they had to vacate the red zone. It meant that Southshore property owners could select a date up until 31 August 2013 to settle with the Crown and leave, rather than 30 June. The aim of the extension was to ease some of the pressures faced by those still yet to move on from their red zone property, including difficulties encountered in finding new property. Later, in June 2013, a select number of houses in Southshore (the author estimates this at 30, although the number has not been released by CERA) were given an extra two months on top of this to leave the red zone. This was in recognition of the delays in building consent processing by the Christchurch City Council, which meant that red zone residents building property elsewhere were often waiting for this to be completed to enable them to move.

Figure 21: CERA land zoning decisions for Southshore

Figure 22: Damage to a balcony and front window in Southshore

Figure 23: Dried liquefaction from the February, 2011, quake

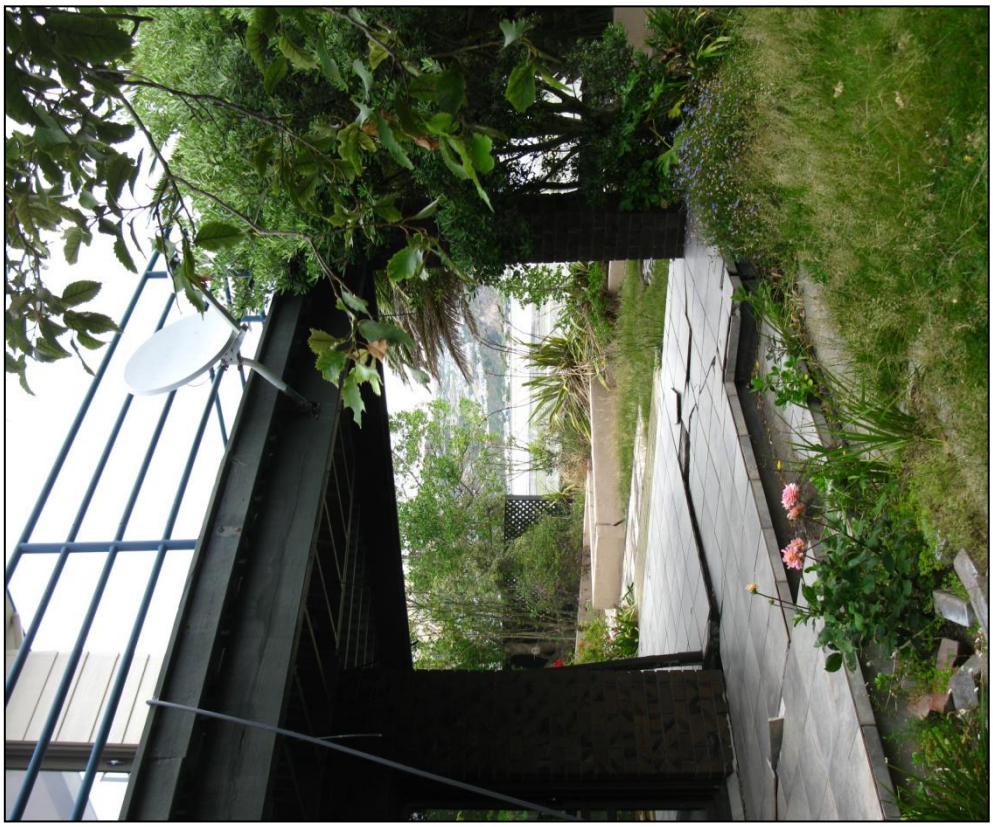

Figure 25: Damage to a Southshore property

Figure 24: Site of a demolished Southshore property (taken from the estuary).

Chapter 4: Research Methodology

Introduction

The purpose of this chapter is to introduce the research strategy and the empirical techniques applied to this thesis. The chapter defines the scope and limitations of the research design, and situates the study amongst existing research practices in post-disaster and mobility studies. I will to discuss my use of theories of interpretative and critical research that define my research process. Such a methodological approach recognises the fact that there are important social and cultural variables that impact and influence post-disaster mobility. In doing so I reflect on the role of subjectivity in the research, analysis and presentation processes, and acknowledge the resultant lack of clinical or extrapolatable results often found in positivist research.

The main methodological approach adopted in this study can be described as mixed method, as it involves both quantitative and qualitative data collection tools and analysis. However the emphasis has been placed on gathering largely qualitative information; thus underpinning the use of a mixed critical and interpretive approach. The research strategy was designed to collect household mobility experiences from Southshore, pre and post residential relocation. The fieldwork was conducted at the sites during the period from June 2012 to August 2013. The main data collection techniques used in this research were semi-structured interviews, questionnaires, and participant observations.

This chapter is divided into three sections. In the first section I describe the reasoning for, and explore the implications of, choosing aspects of critical and interpretive research in conducting this study. This section also explores some of the issues of conducting research in a post-disaster environment. The second section presents the specific research methods employed in this study. It describes the research approach, selection of research area and administering of research methods. It concludes by presenting the demographics of the participants in the study. Finally, the third

section explores some of the issues encountered during the research process and more specifically addresses some of the limitations of the study.

Reflections on Underlying Philosophical Assumptions

All research, both quantitative and qualitative, is based on underlying assumptions about what constitutes effective research and which research methods are appropriate to use. Orlikowski and Baroudi (1991) suggest three categories, based on a comprehensive review of information system research. They argue that research is either positivist, interpretive or critical. Whilst these three research epistemologies are philosophically distinct, in the practice of social research these distinctions are not always so clear. There is considerable disagreement as to whether these research paradigms or underlying epistemologies are necessarily opposed or can be accommodated within the one study (Orlikowski & Baroudi, 1991). In this section I briefly explore the strengths and limitations of adopting aspects of both critical and interpretive philosophy in my research methods.

Interpretive studies assume that people create and associate their own subjective and inter-subjective meanings as they interact with people, places, objects and environments around them (Myers, 1997). In essence, access to 'reality' or 'experiences' is only through social constructions, such as language, consciousness and shared meanings. Such studies generally attempt to understand phenomena through the meanings that people assign to them. Meaning and intentional descriptions are important, not simply because they reveal the subjects' intentions which can be correlated with external behaviour, but because they are constitutive of those behaviours themselves (Orlikowski & Baroudi, 1991). Generalisation from the context to a population is not sought, rather the intent is to understand the deeper structure of a phenomenon, which can be then used to inform other settings. Interpretive research does not predefine variables, but focuses on the full complexity of human sense making as the situation plays out (Myers, 1997).

In slight contrast, critical research generally aims to critique assess the status quo, through the documentation of what could be structural contradictions within social systems and environments. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination (Myers, 1997). Critical research traditionally focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to eliminate causes of alienation and domination in the subject environment (Orlikowski & Baroudi, 1991).

In line with previous post-disaster mobility literature, I chose to adopt aspects of both critical and interpretive research to my study. I do so with caution, however, as choosing such strategies effectively determines how the phenomenon being studied is revealed, and indirectly, the consequences of the knowledge thus generated (Orlikowski & Baroudi, 1991). By using the interpretive perspective I believe it will enable the study to increase our understanding of the critical, social and organisational issues related to the forced relocation of populations after disaster. Such an approach allows an understanding of the context, as well as an understanding of how post-disaster mobility influences, and is influenced by, the context itself. Essentially it enables me to ask the questions of 'why' and 'how' (Boland, 1985) particular mobility patterns are created. The critical approach allows for the researcher to see the interdependence of parts with the whole, and that organizations/households experiences cannot be considered in isolation of the environment in which they operate. As part of the research process I wish to highlight the potentially conflicting roles of structure and agency in determining post-disaster mobility- a process that is enabled by adopting aspects of the critical approach.

However, such 'picking and choosing' of research perspectives is potentially limiting. The interpretive perspective does not examine the conditions, often external, which give rise to certain meanings and experiences. The interpretive perspective also does not address structural conflicts within society and organizations, and ignores contradictions which may be endemic to social

systems. The incorporation of aspects of critical research, I hope, in some way offsets this. The selectivity in perspectives that I have shown, especially in regards to the critical approach, may overstate the extent to which contradiction and domination appear within the sample. Whilst Orlikowski & Baroudi (1991) argue that critical and interpretive approaches are in fact complementary, I must ensure that I understand the implications of such choosing, and act in ways that reflect that knowledge. In regards to this study I believe that I need to be open to the possibilities of other research practices, and not create an orthodoxy which precludes the use or publishing of different research (as defined by Orlikowski & Baroudi, 1991). An example of this may be ignoring or labelling positivist research as irrelevant due to its theoretical approach. This largely involves understanding and acknowledging the extent to which the perspectives I adopted will focus my attention on some phenomena and not others, in turn potentially biasing my perception on the themes and behaviours that I am attempting to document. Where appropriate in this thesis I have noted where this may have occurred.

Ethical and Empirical Issues with Post-Disaster Research

Research into the post-disaster environment is perhaps one of the most methodologically difficult contexts to work in (Parkes, 2011). Disasters can have profound effects on those who experience them. Such environments are usually dominated by public feelings of fear and uncertainty. In the face of the confusion and chaos associated with large-scale interruption of many societal systems, it can be difficult to determine when, and even if, human subject research is appropriate. However, if we avoid research during these times, we may never be able to improve our understanding about the processes and experiences at play in a post-disaster situation (Chung et al., 2008). I therefore wish to briefly examine some of the concerns in operating in such environments.

Chung et al. (2008) argue that often researchers need to be reminded to implement a methodology designed to advance knowledge of how best to help individuals and communities, and that the research should meet high ethical standards. Determining the appropriate balance of risks

and potential benefits of research, as well as the appropriate distribution of research burdens and benefits, are difficult in every research study, let alone those in a natural disaster context (Rosenstein, 2004). Acknowledging that research might add to burdens or risks for harm and might not provide needed benefits may be difficult when thinking about the devastation that individuals and communities experience after disaster strikes (Collogan et al., 2004). Ensuring that research studies conducted address questions that are pertinent to the affected individuals and communities is critical to the fulfilment of these ethical principles (Emanuel et al., 2004).

The idea of 'beneficence' therefore obligates the researcher to design their methodology so as to maximize the probability and magnitude of benefits to individual research subjects as well as to society. It further requires investigators to minimize the probability and magnitude of injury to individual research subjects (Hoffman, 2009). In regards to this project care was taken when addressing the potential risks to participants. The sample were informed of the nature of the questions, and repeatedly told that they were not required to answer questions if they did not wish to. The project was shaped by a desire to understand patterns of mobility and the methodology was therefore designed to mitigate any chance for injury or distress to participants.

Post-disaster research also often requires a more stringent consideration of potential ethical issues. Whilst the above idea of beneficence is important, researchers are responsible for ensuring that all ethical principles are adhered to. Chung et al. (2008) implore that the presence of community voices are essential to ethical post-disaster research. In practice, the ideal of community participation is often hard to fulfil in general, and may seem impossible in the chaos and confusion of a post-disaster environment. When broad community participation is achieved in post-disaster situations, relevance of efforts to address the safety of affected populations appears to be enhanced (Collogan et al., 2004). As a result the methodological approach of this project ensured that community members and organisations were involved in the research design phase, and existed as a partner in the research period.

King (2002) argues that the role of researchers often extend past their normal duties when working in a post-disaster context. In many cases the researcher may be the first person to have face to face discussion about the recovery with the participant (Parkes, 2011). As a result, at the very least, the researcher must be aware of the health services available and be ready to help individuals in need to access these services. As described in Chapter 5, the lack of support services for relocatees meant that I was often the first face to face contact participants had with any figure to do with disaster recovery. In regards to this project a sheet listing available mental health services and earthquake information was provided to every participant.

Researchers in this environment should also be aware that many research studies might be targeted toward the same group of participants and care should be taken either by researchers to reduce the burden potentially associated with being asked to participate in multiple research studies. As highlighted earlier, while Southshore was not initially subjected to intense research, the presence of American research groups appeared unsettling to many in the city. In an attempt to offset this I ensured that I reiterated my concerns if a participant noted they had partaken in previous research. However only one household had participated in another study, and were happy to contribute to both projects. I believe the need perhaps exists in Christchurch for an ethics committee to sit at government level to ensure that research duplication, and over-burdening of participants, does not become an issue.

Validity of Data

One of the more documented flaws in post disaster studies is that they appear to be a snapshot in time (King, 2002). A much deeper understanding of the impact and behaviour of a community or individual is gathered through longitudinal studies or at the very least, return visits at a time significantly after the event (Michaels, 2003). While this project is longitudinal in nature, the epigrammatic schedule limits the amount of information that can be collected. I have attempted to balance the resources available (including time), whilst reflecting on the burden on

households/individuals who participate. Ideally I believe my results would be more valid if a longer time-frame was available, however this was not possible.

King (2002) states that the idea of post-disaster research is to eventually move from an 'individual context' to a 'bigger picture'. Often research is confined to the context that it studies, but it is hoped that the themes begin to supersede the context itself, and can be applied at a wider policy level. Nevertheless, if the data appears to show a single point in time, this process it often difficult (King, 2002). As this thesis illustrates, disaster experience is often shaped by a number of external and internal processes that make having measurement points problematic. To make the research relevant to other contexts it appears that the approach to the research must have a solidly constructed methodology and as many data measurement points as possible (Michaels, 2003).

Another issue with data in such a context is that post-disaster researchers often carry out fieldwork and subsequently try to work out what it all means. Rapid response surveys, and attempts to find perspectives on recent issues, frequently do the same thing. Unclear aims and vague research questions are clearly a problem of many post disaster studies, but the immediacy and uncertainty of the situation frequently leaves little choice (Chung et al., 2008). One of the strengths of this project is that a strong methodological approach was able to be designed as a result of other suburbs being zoned before Southshore. While the decision was relatively recent, the approach could be shaped and developed by examining experiences of people in other parts of the city.

Wenger, Dykes & Sebok (1975) also make an interesting point that in regards to collecting post-disaster experiences. They argue that respondents often compare themselves to what they believe to be the 'normal' behaviour in such an environment. This means that they either, unconsciously describe their experience as worse than how they feel, or adapt their explanation of their feelings to how they think they should be feeling. Wenger, Dykes & Sebok. (1975) hypothesise that this emerges out of a fear to be the small minority who do not deal with a disaster in a conventionally appropriate way. All this does, however, is publically reinforce a group of 'disaster' myths as normal

behaviour. This behaviour is then seen to be justified through publishing in academic literature. Where I believe this was a concern in this study's results I have noted so in Chapters 5 and 6.

In summation, the post-disaster environment is a difficult one in which to conduct research. Reflection upon such literature enables a researcher, however, to ensure that any studies may be conducted ethically, and ensures that research addresses questions that are pertinent to the affected individuals. As previously stated, one of the strengths of this study is the timeframe in which it operates. Whilst it is still a 'post-disaster' study, the late zoning of Southshore allowed for potential ethical and methodological issues to be considered, and where appropriate, to be resolved.

Research Design

Selection of Research Area

The selection of a study area was based upon two factors; the timing of the zoning announcement and characteristics of the neighbourhood. It was evident from examining the impact of the Canterbury earthquakes that the eastern suburbs of Christchurch appeared to be most severely affected (National Infrastructure Unit, 2011). Despite the variation in location of the two most significant earthquakes (September and February), areas of liquefaction and damage appear to be relatively similar.

It was decided to focus on Southshore because of the timing of the zoning announcement. Some eastern suburbs had been zoned red as early as June 2011, and by August land to the north (Bexley) had received the same decision. However, more seismically complex areas, such as the Port Hills and Southshore did not receive zoning decisions until mid-2012. The project itself aimed to interview participants before the move out of the red-zone and after they had completed their residential relocation. Since the project began in June 2012, it was not practical to search for a sample in many red-zone areas, as by late 2012 most would have already moved. Given that CERA allowed 12

months for residential addresses to be vacated, Southshore therefore provided an area that had received a zoning decision, and whose residents would relocate, within the study period.

A number of important characteristics also made Southshore an attractive study area. Southshore is a small, geographically contained area that contained houses in red, green TC2 and green TC3 land zones. As the suburb was one of the last to be zoned residents appeared to encounter more of the documented post-earthquake difficulties. This included issues with insurance companies, troubles with EQC and concerns with CERA decision making. The suburb, and in particular the red-zone strip on the west side, also appeared to have an interesting mix of high and low income earners, and single, couple and family dwellings. In a way these characteristics made Southshore an appealing study area, particularly as residents appeared to be more adversely affected by government intervention than in other suburbs.

Nevertheless choosing a study area based upon such characteristics makes extrapolation of results problematic. Taking such an approach is essentially equivalent to searching for structural contradictions and domination within an environment. While this may result in the documentation of experiences that do not represent the majority discourse, I believe it was necessary to understand the effects of organisational action on different groups in such an environment. The idea of gathering a sample from different red-zone areas was raised as a possible solution to choosing a site based upon characteristics. Although an attractive idea, it was deemed unfeasible considering the time in which the project was started.

Initial Information Sources

Unstructured interviews, in combination with simple observation, were employed with members of the neighbourhood so that the project aims and scope had the opportunity to be shaped by local interests and preferences. These interviews were conducted with members of the Southshore Residents Association, as well as active members of the community, and allowed me to obtain a preliminary understanding of their environment. From these interviews, it became apparent that

most of the red-zone residents were encountering issues with EQC, insurance companies and the CERA zoning process. These were similar problems that I had previously identified by canvassing media coverage of the aftermath.

These initial interviews also highlighted problems such as poor government response immediately after the earthquakes, lack of housing available for people to move into, loss of community, and a perceived lack of control in what was happening both to community members, and the environment they lived in. In regards to residential relocation it was noted that a section of the red-zone community wished to stay in the neighbourhood, but the housing did not exist to facilitate this. Whilst this had the potential to influence the research process, initial discussion of these issues allowed for discussion about such concerns to be incorporated into the research methods.

At this stage, organizations concerned with the Christchurch recovery were contacted to inform them about the study and to give them the opportunity to provide input. These included the Christchurch City Council and the Earthquake Commission. These organisations were contacted because of their role in the creation of the red- zone itself, and their control of subsequent processes designed to help affected populations. The lead supervisor of this project also had contact with the local parliament representative in regards to research in Southshore. It should be noted that attempts were made to contact representatives of CERA, however none of these enquires were returned.

Data Collection

Eligibility for the study was defined as having lived in the Southshore red-zone at the time of the September 2010 and February 2011 earthquakes. It was decided that, since the area of red zone land was relatively small (198 houses), there was no need for the implementation of a random probability sampling design. Cresswell (2012) states that the lack of a sampling design often leads to invalid results, however it was that the number of potential participants and resources available made implementing such a design impractical. As a number of residents left after the earthquake

and had not returned, and many resident's timeframes would not fit into those of the study (i.e. relocation date may be outside of the study), contact would be attempted with all red-zone properties. It was decided that the balance between these factors and the resources available allowed for a target of 20-25 households to be involved in the project.

Participant recruitment occurred through a number of mediums. Firstly advertisements were placed in the local newspaper, The Beacon. Secondly, leaflets informing residents of the project were letter-boxed dropped, with the option of contacting me should they wish to be involved. I also attended community events (such as a neighbourhood planning evening), and spent time at a local 'open community house' to share information about the project. However these methods only established contact with residents that were actively involved in community events, or took interest in community publications. In an effort to reach people outside of these groups every red-zone house was door-knocked to invite residents to partake in the research. If no-one was home a second leaflet was left under the doormat.

Thirty-one households were recruited for the study, comprising 15.7% of Southshore red-zone properties. The characteristics of these households compared to Southshore and Christchurch means are presented later in this chapter, however it appears that older or retired households were more likely to respond positively to the study invitation. Throughout the door-knocking process houses that were semi-demolished, had red-stickers on their doorways (highlighting they were unsafe to live in) and appeared to be deserted were noted down to record how many households had already relocated. It seemed as though, despite this occurring only 5 months after the red-zone decision was announced, 60% of the red-zone houses were no longer occupied. This left approximately 85 occupied houses at the time of the research. Recruiting participants through the methods previously discussed means that these early movers are notably absent from the study. I attempted to offset this by relying on participants to spread news of the study by word of mouth- a process that resulted in the recruitment of 4 of these early movers. The implications of this are

further discussed in Chapter 5, however I admit that such an approach may make some of the research outcomes inapplicable to these early movers.

The main data techniques used in this research study were semi-structured interviews, questionnaires, participant observation and secondary source analysis. Personal semi-structured interviews provided the majority of, and most valuable, information. Participants who were interviewed were provided questionnaires twice; once before relocation (see Appendix D) and once residential relocation had occurred (see Appendix E), in an attempt to capture a complete picture of the impact of relocation on forced relocatees' livelihoods. A number of households had not relocated by the second interview, having received red-zone extensions late in the study period (as explained in Chapter 3), and were thus interviewed a third-time once relocation had occurred. Figure 26 presents a schematic diagram of the research methods relative to zoning announcements and red-zone deadlines.

Human Ethics Committee approval was sought before the beginning of the research (see Appendix F). The interview schedule and survey were pilot-tested before use in the field. Later, the revised version of the interview schedule was administered in the sample households. A representative of the household was asked to respond to the questions in the interview schedule. In some instances two people were present during the interview and their comments, where appropriate, were noted separately. The survey and interview were intended to be complementary, and it was my desire to find out patterns of participants mobility (via the survey), then explore the reasons behind these (via the interview). The survey included open, closed and multiple response questions. The questions explored movements since the earthquake (i.e. temporary), the decision making involved in relocation, the relocation process itself, perceptions of control and choice in post-disaster relocation. I also wished to investigate levels of subjective well-being (SWB) levels pre and post relocation and utilised the WHO-5 well-being index to do so. Whilst this particular index was less comprehensive than alternative options, it has received positive feedback in international literature

(including Henkel et al., 2003, who stated it performed best in diagnosing depression and mental health issues after disasters). An interview schedule was constructed, designed to ask in depth questions about the relocation experience, but also to elicit further information about what the participant had noted in the survey (see Appendices G and H for interview schedules). Appendices I, J and K contain the information form, consent form and support services form supplied to participants at the beginning of the project.

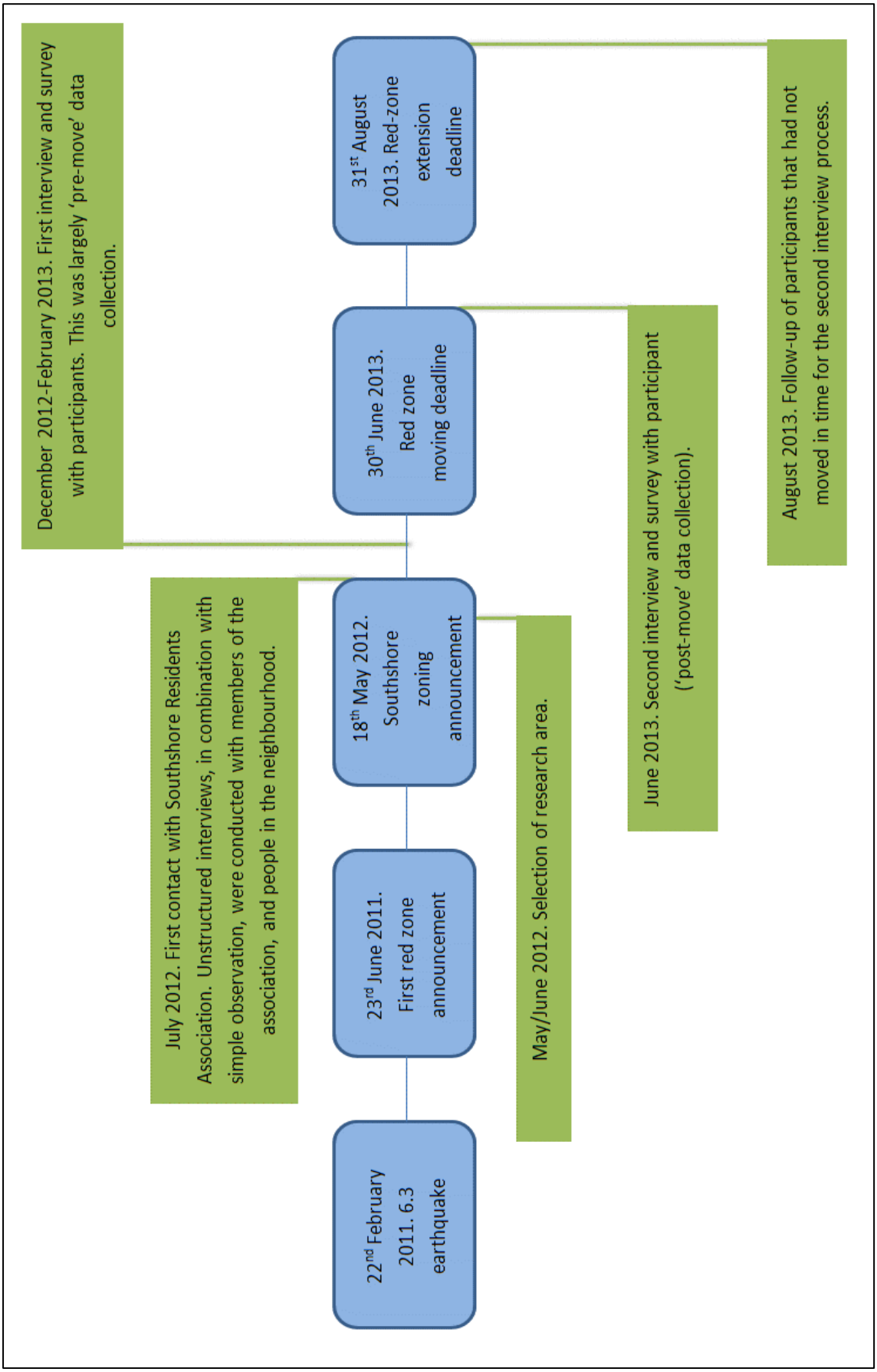

Figure 26: Research and interview process relative to earthquake and recovery events

The first interviews with participants were carried out for a period of three months from December, 2012 to February, 2013. In some cases it was necessary to re-book interviews 3 or 4 times as participants were often involved in meeting lawyers and looking for property after work hours. In a small number of cases, the interview had to be postponed as the participants felt they could not deal with an emotionally sensitive subject that particular day. Valenzuela & Shrivastava (2002) state that for reasons of research validity it is imperative to conduct the entire set of interviews within a specific time period, especially in a longitudinal study. However I believe that assigning such a period, as I did for these first interviews, meant that households recorded results whilst in different phases of pre-relocation behaviour. While this is important for results (and the reasons for these variations are explored in Chapter 6), it meant that caution had to be used when discussing 'pre-relocation subjective well-being'. In order to attempt to offset this I have noted where I believe such levels of SWB were heavily affected by where in the relocation process households may have been.

This second interview and survey with participants was conducted during June 2013, for a period of 3 weeks. The second interview involved a survey and schedule that explored some of the themes identified in the second stage. The objective was, on one hand, to explore new developments and, on the other, to look at changes that had taken place since the previous interview and survey. For consistency, the same person previously interviewed in each household was re-interviewed to gather further information. The interview and survey took approximately 30minutes to complete (compared with 45min to an hour for the first interview). Some respondents, however, continued to talk for up to two hours.

There were several instances where the respondents who participated in the earlier interview could not be re-interviewed a second time. In a small number of cases (3 participants) this was due to a lack of response to a proposed second interview time (i.e. they did not respond to my contact). However the majority of those who were not re-interviewed were due to a mutual decision between the participant and the researcher about the suitability or appropriateness of undertaking an

interview. For example, it was found during the first interview they did not meet the criteria to be involved in the project, or they had already moved at the time of the first interview and there was no need to get a second interview. As a result, 23 of the 31 households involved in the first interview were interviewed and surveyed a second time.

Data Analysis

All interviews were transcribed in Microsoft Word and extensive notes were also taken during the fieldwork. The information gathered from these interviews was subjective, although an attempt was made to present an account from various perspectives. Interview transcripts and written notes were analysed systematically through iterative and repeated re-reading of them. This made it possible to gain an understanding of each interviewee's viewpoint and perspective and of links and contradictions within and across interviews. Participants were given the opportunity to review all interview transcripts and copies of the completed surveys.

Both qualitative and quantitative analysis techniques were then employed to gain a more complete picture of the research environment, as suggested by Cohen, Manion & Morrison (2000). A code book was constructed as the first step of the quantitative data analysis. Data was entered into the Statistical Package for Social Sciences (SPSS) program after completing the data editing and coding stages. Both univariate and bi-variate statistical analysis tests were applied, largely in order to understand the relationships between variables and levels of SWB. Simple descriptive and frequency tests were also used (for example, to calculate the means of responses and to present descriptive statistics of demographic variables).

Qualitative data collected during the interviews was all recorded on a dictaphone. These files were then transcribed and the transcripts sent to participants for review. Page, Samson & Crockett (2000) describe the three reasons for sharing the information with the interviewees as; politeness or compensation to people who donated their time to the research, validation of the data or findings, and supplying of information and recommendations that could improve conditions by empowering

people. In offering transcriptions for review I intended to overcome the occasional lack of sound quality in a recording, to continue the rapport between the participant and myself, and to achieve quality transcriptions which accurately represented the participant voice. In doing so the potential integrity of the transcript was preserved because the participant was the one to decide whether the content represented the true intention of the transcript (Mero-Jaffe, 2011). Furthermore, the research was enhanced since the participant was better able to define and clarify his or her responses. However in some cases I believe that participants used the opportunity not only for the purpose of clarifying content, but to make them sound more articulate, or measured. Once this was completed the transcripts were coded using qualitative data analysis programme NVivo. The data was then arranged according to the developed codes as this made it easier to closely compare and contrast data and to identify various relationships and patterns.

The GIS programme ArcGIS was also used to analyse and present census data for Southshore and wider Christchurch. Layers provided through the LINZ website were used to create zoning maps (such as Figure 14) which enabled potential participants to be identified. ArcGIS was also used to create maps which illustrated short and long term mobility patterns of participants, as presented in Chapter 5.

Demographics of Respondents

Table 1 draws on 2006 census data to describe the demographic characteristics of participating households, Southshore as a suburb (defined as South Brighton by Statistics New Zealand), and Canterbury as a wider region. The population of Southshore has a higher income and a greater proportion of New Zealand Europeans than the Canterbury region. In comparison to the Canterbury region, the participants in this study had greater proportions of women, New Zealand Europeans, people over 65 and home-owners.

Comparisons between the sample and census data require some care, however, as the most recent census data is from 2006. The 2011 New Zealand census was cancelled as a result of the February 2011 earthquake in Christchurch. As mentioned in an earlier chapter, the Southshore area has undergone significant transformation in recent decades. Conversations with residents of Southshore highlight that, in the period 2006-2010, the suburb experienced increasing house prices and an influx of retired residents who value the natural amenities of the area[3].

Table 1: Demographic breakdown of respondents

(Source: 2006 New Zealand Census of Population and Dwellings)

Characteristic	Participants	Southshore	Canterbury
Population			
% Male	43.7	47.1	48.8
% Female	56.3	52.9	51.9
% House Ownership	96.9	68.5	59.8
Ethnicity			
% New Zealand European	93.8	82.5	77.4
% Maori	6.3	7.8	7.2
% Other	0	9.7	15.4
Age			
% under 15*	0	18.1	19.6
% over 65	54.2	11.9	13.9
Income (Individual)			
Median	34,000	26,300	23,500
*Respondents under the age of 18 were excluded from the study			

[3] It is reasonable to assume that the forthcoming 2013 census data (due to be released in December 2013) will show a higher median income and a larger population percentage over the age of 65 than was the case in 2006.

However several observations can be made in regards to the relationship between the above demography and the geography of the red-zone itself. It is important to note that respondents under the age of 18 were excluded from this study. Despite this, none of the households involved in this study reported anyone under 18 living in their household at the time of the study. The high percentage of house ownership in the sample is also noteworthy. I believe that those renting red-zone properties may have left Southshore as soon as the area became red-zoned, especially if the house experienced heavy damage, thus increasing the proportion of home-owners involved in this study. Despite this, there is little evidence (highlighted in the dated comparisons to Southshore and Canterbury) that many homes in Southshore are rented. Lastly I would like to comment on the location of the red-zone in Southshore itself. The red-zone is limited to (as shown in Chapter 3) the estuary front. Properties here often have a water and city view and are therefore generally valued more highly. As a result they tend to be occupied by either higher earning households or an older demographic that had owned the property for a long period of time.

Fieldwork Issues and Concerns

Given the emotional nature of relocation and conceptual issues with documenting post-disaster mobility, the problems faced during the research were relatively inconsequential. It quickly became clear that it was not easy for an outsider to conduct fieldwork and collect reliable data about forced relocation without first developing a good rapport and trust with community members, an issue highlighted by Fernando (2010). To varying degrees, my rapport with research participants was established by my own experience with the Canterbury earthquakes and central government intervention. Having been in the red-zone myself (Avonside) and in the middle of the worst hit area (if measuring by casualties), the CBD, during the February quake, I felt that participants were open to the questions that I put to them. This stemmed from participant's beliefs that I had experienced feelings of loss similar to them. In some ways this also proved a difficulty. Residents often assumed I knew why and how they were feeling about particular issues. On numerous occasions participants

responses to questions would end with, 'you'd know all about that, I don't need to explain what it means'. This required me to ask for elaboration of participant's responses.

In the following section I explore two issues, or concerns, that arose during the research process. Whilst they may not have adversely impacted the research, I believe that the expectations of study participants and the role of the media were often correlated with how participants responded to particular questions.

Expectations of Study Participants

A large amount of research has been conducted in Christchurch since the September 2010 and February 2011 earthquakes. A rumour circulating within Southshore at the time of this research was that the first team of researchers from the United States arrived 3 days after the February quake, quicker than many of the disaster response teams. As a result there was initial reservation about my project from some households, especially as it emerged relatively shortly after the red-zone decision. A local resident made the comment during the door-knocking phase that "… a lot of researchers come to places like these to fill their quotas, get their qualifications, and then it all sits somewhere gathering dust. Why would your work be any different?" I responded by explaining that the Southshore Residents Association was involved in shaping the scope of the study, and that I hoped that the results would be a useful resource for the community in the future. This appeared to alleviate the resident's concerns.

The relationship and rapport with the local residents association helped ease this issue. Community members appeared to appreciate that the research had been designed in consultation with the association's board. The advertisement in the local newspaper was written by the head of this association, and this was recognised by members of the community. I have been told that a subsequent group of researchers have attempted to do some work in the area, but with very little success.

However, one of larger difficulties encountered was the expectation that participants placed upon the research. Many saw the interviews as an opportunity to have their voice heard, and in particular as an opportunity to share a negative view of those tasked with rebuild and recovery efforts. One respondent commented that "we have no voice in this whole scenario … so it's good to be able to talk to someone who understands what we are going through." Another respondent noted that, after highlighting the failures of Gerry Brownlee and CERA, "… I hope that's what you wanted to hear. A lot of people are too scared to say it up front, but I hope that you can publish that, because it's how we feel and people need to know it."

In many ways this exhibits aspects of 'demand characteristics' (Barabasz & Barabasz, 1992). Participants often formed an interpretation that the research was set to highlight inefficiencies in the recovery period, and as a result, changed their behavior to fit that interpretation. As the findings later illustrate, these views are not necessarily incorrect. It simply appears as though some saw the research as an opportunity to give a 'voice to the voiceless'. One example of this is when respondents were asked if they had issues with insurance or EQC after the disasters. Many responded they did not, but knew of friends that did, and proceeded to speak on their behalf so that their issues could be heard.

The Role of the Media in Shaping Response

One of the more interesting issues to arise from the research process was the role of the media in shaping people's perceptions. A number of questions were raised in the interview schedule that asked about participant's perceptions on different issues. These included the 'forgotten east' (the idea the eastern suburbs were not prioritised in the immediate quake aftermath), and the concept that insurance companies were not being honourable. In regards to the first issue one participant, Mary, stated,

> To be honest … I never really had any issues with what happened afterwards. I had a nice man come and deliver me water and people were dropping food to me … and I got delivered

> a toilet … but I was reading in the paper yesterday about the schools, and about how they had finished this road, and that road, all on the west side of town of course ... and it got me thinking that maybe we have been left in the lurch a bit, you know? Maybe things on the west have been prioritised before us … the papers seem to show all these nice new things in parts of town … but then I look out my lounge window and it doesn't look anything like that.

Building on this, during the second interview process CERA released a press statement saying that a small group of Southshore residents had been given a red-zone extension, meaning they could stay in their houses for an additional 3 months. On the morning of the decision, before the press release I had spoken to a participant, who stated,

> You can't make any progress with CERA. They don't understand how we're living, what we're expected to do. There's no understanding of it all … worst of all there's not even any contact. You want to invite Gerry Brownlee out to your house and say 'Look, I don't want to live in this either but I haven't got anywhere else to go' … you see him in the papers flying up and back from Wellington everyday … he has no concept of what's going on, and if he does, he doesn't care. We need more time … and some understanding.

Later that day I was speaking to another participant. A press release had emerged around lunch-time, and the news article (Wright, 2013) highlighted that CERA were willing to help those who needed more time. The participant stated,

> I saw the news this morning that CERA had given some people an extension … I think that's great … I guess it's been hard for us all but it's great to see that they [CERA] are now a bit more understanding in the way they make decisions. I hope it continues this way.

While the comments are perhaps reflective of the decision CERA made, they nevertheless highlight the way in which media has the ability to sway the perception of events. Mary appeared to admit that, while she could not personally relate to the idea, the fact that she had seen it recently in the

media shaped her response to my question. It is possible that the first participant's views of CERA may have changed had I interviewed him in the afternoon of that day. In such a dynamic environment, with media playing such a vital information dissemination role, it is not implausible to suggest that the qualitative information I gathered is limited. The information is perhaps both fixed and applicable to only the time in which it was said, and 'experiences' may not be lived, but rather a creation from information read only hours before.

Zaller (1999) argues that media has power to influence perception, and has the ability to raise or lower support for an issue via coverage and non-coverage. In many ways I believe this to be true in regards to the post-earthquake environment. As a result in Chapter 5 I begin to attempt to understand how perceptions of the event have changed after residential relocation has occurred, and the processes that appear to play a role in this.

Conclusion

The post-disaster environment is undeniably a difficult one in which to conduct research. By utilising semi-structured interviews, questionnaires, participant observation and secondary source analysis as my data methods I have attempted to balance the quality of information with wider ethical and participant beneficence concerns. In regards to the research questions the personal semi-structured interviews constituted the most valuable information. Such an approach was underpinned by adopting aspects of critical and interpretive research. By limiting these interviews, and surveys, to pre and post move I have perhaps restricted data collection to specific points in time. However I believe it was necessary as to not strain the available resources from the researcher's perspective (for example, the time and analysis resources available) and to mitigate potential distress and disturbance for participants. Whilst issues of media in shaping participant's responses and the expectations placed upon such research have been noted, I believe that the adopted methodology allowed for ethical research to occur. Where the results have been affected by the above issues or methodological limitations I have attempted to note it throughout this thesis.

Chapter 5: Post-Disaster Mobility Patterns, Forced Relocation and Well-Being after the Canterbury Earthquake Sequence

Introduction

The Canterbury earthquake and subsequent aftershocks caused widespread damage, resulting in loss of life and disruption throughout the city and the surrounding districts of Selwyn and Waimakariri. Due to the nature and intensity of the quakes themselves, damage was not limited to buildings and infrastructure, but extended to the land on which they sat. As a result, for property owners, the February quake itself was only the beginning of a prolonged process that determined future feasibility and safety of the land. For those deemed in the red-zone this meant compulsory acquisition of their land by the Crown.

The aim of this chapter is to understand mobility patterns and the disaster experience of red-zone residents in the suburb of Southshore, Christchurch. The findings of this study are divided into two chapters. This first chapter describes and explores the patterns of short term mobility and long term residential relocation amongst Southshore households. It explores the decision making process that shaped these patterns and behaviours, and examines the concepts explored in the literature review section of this thesis from the participants' perspective.

This first findings chapter also gives the reader an insight into the experiences of those forced to relocate as a result of the Canterbury earthquake sequence. After participant's post-disaster mobility patterns are presented and discussed, the chapter moves to explore the effects of the red-zone decision, and particular mobility patterns, on the health, well-being and disaster experience of red-zone households. The chapter concludes by analysing the difference between subjective well-being (SWB) pre and post move, as well as understanding the effect of government and private market involvement in the relocation process.

Short-Term Post-Disaster Mobility

In contrast to previous post-disaster mobility studies, respondents in this study exhibited little, or no, short-term residential movement. Participants were asked if they had lived anywhere else than their current red-zone property since the September earthquake. Of the 31 households in the sample, only 13 (42%) had lived in another residence for more than seven nights since the earthquake. Of the 13 households that had relocated, only two had resided in more than one other property.

The Temporary Movers

Figure 27 highlights the movements of those who temporarily relocated within New Zealand (i.e. within a year of the February earthquake, and moved back to Southshore before the red-zone decision). Two households also relocated internationally during this time (to Melbourne and Perth/Gold Coast, Australia, respectively). Despite the small number of household movements, Figure 27 illustrates three distinct patterns. Firstly there are two participants that moved within Southshore itself. Whilst not portrayed on the map, both of these involved households moving to another property less than 500 metres from their initial home. Secondly, there is a general north-western flow in those who temporarily relocated within the city of Christchurch. From this one could hypothesise that these households moved to areas that were less damaged than Southshore itself (as described earlier, the eastern, central and southern parts of the city experienced higher levels of material damage). Lastly, of those in the study who moved outside of the Christchurch region, there is a southward moving pattern. This is consistent with the findings of Newell, Beaven & Johnston (2012), who highlighted that a large proportion of post-earthquake movers stayed temporarily in the Otago and South Canterbury districts.

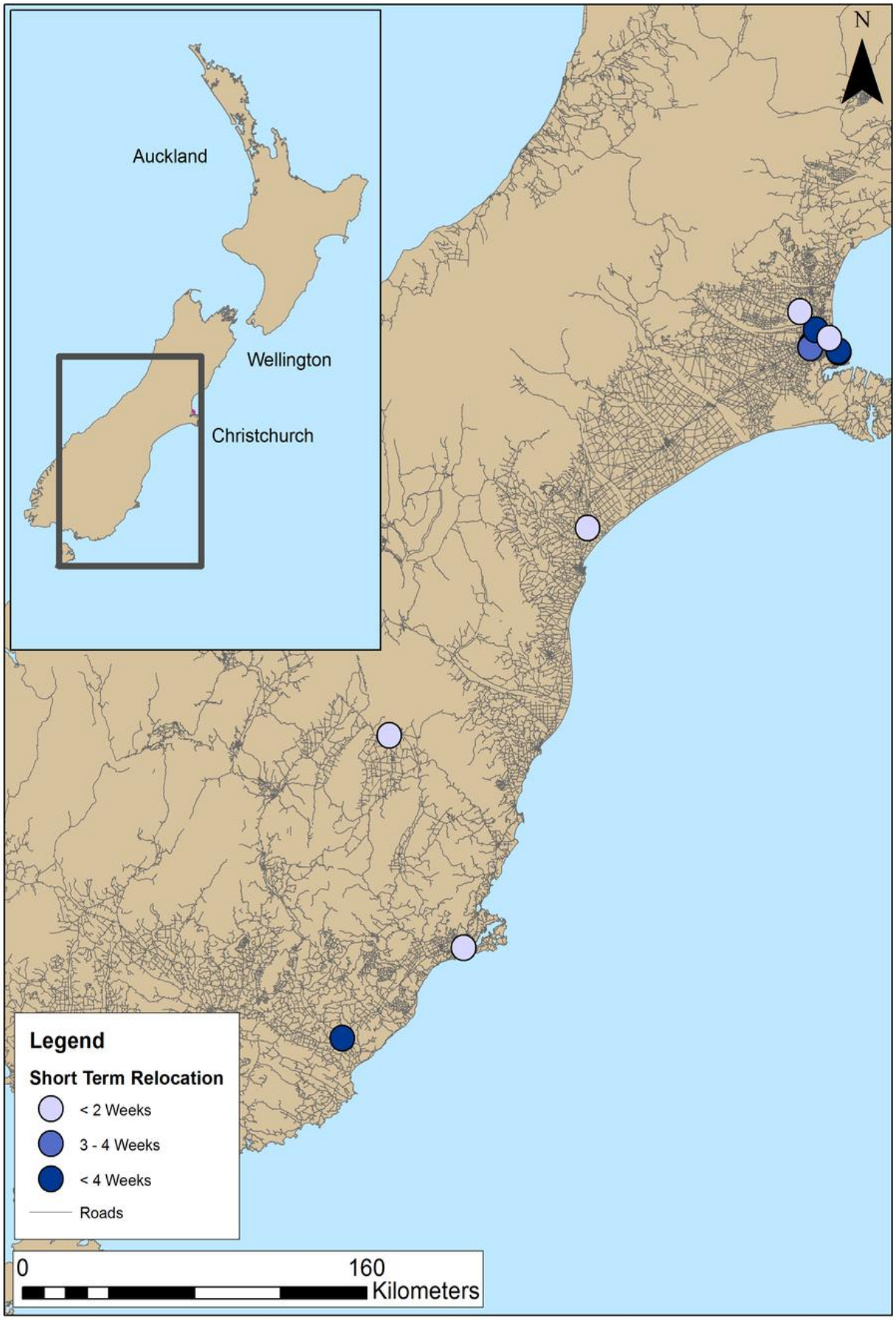

Figure 27: Relocation sites of short term (or temporary) movements

Those that did temporarily relocate stated the most significant reason for moving was a lack of services in their home. These movers had lost electricity, water supply or sewage (or a combination of these). These movers were unwilling to live daily with the abovementioned loss of services. A small proportion of this group (3 households) moved as the earthquake had critically damaged a section of their house. Another important relocation reason was receiving an offer from friends or family to stay in properties that had access to the lost services. 10 of the 13 households that moved in the time between September 2010 and the interviews had relocated to stay with friends or families. This indicates that the 'push' from Southshore (lack of amenities) was combined with the 'pull' of a friend/family connection in another location. In regards to the southward trend of those moving outside of Christchurch the threat of an earthquake on the Wellington fault-line (that runs near Nelson and Blenheim) formed a type of 'push' against movement northward. Despite the acknowledgement that there is no relationship between earthquakes on different fault-lines, the earthquake seemingly heightened awareness of future events of a similar nature.

The continuing aftershocks are also a significant driver of short-term mobility outside of Southshore and the wider Christchurch region. All respondents that moved temporarily outside of the Christchurch region stated a desire to get away from the constant aftershocks and the fear of another big damaging earthquake. Implicit in this desire to escape further aftershocks was an aspiration to, as one respondent stated, "… go to a place where it doesn't look like a city has been destroyed". Nearly all of this group mentioned, in some way, that living in the damaged Christchurch and Southshore landscape was too emotionally and physically difficult. On one hand the damaged roads and relative inaccessibility of Southshore from the city centre was difficult to manage in day to day mobility. On the other hand, the continued sight of a city damaged by earthquakes placed an emotional stress that could perhaps be solved by temporarily relocating. One respondent, Rachel, stated,

> Probably two weeks after the February earthquake I left town with my mother, just to get out of town, yeah … we just kind of … we just travelled around down south ... Dunedin mainly. [It] was just to go get away from the aftershocks really. There was that predicted, you know … that had that prediction for another big earthquake in March and so you started to think about that … It was about safety. We made it a little bit like a holiday … a bit of a chance to get away and go to places we hadn't been before … and they happened to be places where everything was working … we were just kind of glad to be in a place where we didn't have to think about … and see what was happening back in Christchurch. It was good to get away, but it kind of made it sink in all the more.

Similar to Rachel's experience, a number of short-term movers commented that they could felt secure in the company of friends and family, especially if the accommodation was, as one respondent stated, "out of the range of where you can feel the aftershocks". Yet Rachel's experiences differed from other short-term movers in that she did not rely on social connections to provide temporary accommodation. However she later commented on the importance of having her mother with her, so that they could provide support for one another when needed. Therefore, the majority (11 out of 13) of households that made short-term moves did so because of the presence of social connections with people in another location. The data suggests that the social connection facilitated the movement itself by providing physical resources (housing or amenities, such as water and sewage) and social resources (support or a form of 'social escapism').

It is also interesting to note that Rachel believes that the movement away from Christchurch "made it [the earthquake situation] sink in all the more". When I queried why moving away made the situation sink in, Rachel replied that media coverage is often hard to access in a post-disaster environment. She stated that it was not until she stayed somewhere with power and the access to the internet that she realised the full extent the February earthquake. When this point was raised with the households that moved in the two weeks after the February earthquake (8 of the 13), every household agreed that they did not realise the extent and geography of the damage until in their temporary residence.

Those Who Stayed in Place

The relatively uncommon nature of short term residential movement is important to explore in itself. Of the 18 households that did not temporarily relocate, only 1 expressed the desire to do so. These participants felt that there was no need to move, as they felt Southshore had suffered little damage compared to other suburbs. Most of these participants stated that their houses were perfectly safe to live in and exhibited little signs of damage. One participant, John, turned the question back on me when I asked why he had not temporarily relocated,

> You want to know why I haven't moved out of here? That's a strange question … well … why would I? There's no need to … it's my house …It's still standing. Do you feel safe coming in here?

On confirming that I did indeed feel safe, he continued,

> There's your answer then. I feel safe in here. I have everything I need. I had an emergency pack all ready to go … I had a port-a-loo just down the road … the water guy came from Rangiora every day and supplied us with fresh water … I had everything I needed to live just here, including my wife … but don't tell her that! I went over my house with a fine tooth comb … there was some … well some obvious slumping towards the estuary ... by about 80mm by my measurement … but that's wasn't enough to make me leave.

Apparent in this excerpt, and in 14 of the 18 households that did not exhibit short term residential movement, was the belief that Southshore wasn't badly affected enough to warrant moving out of. While there were initial complaints from many of the households that services such as port-a-loos were slow to arrive, there was a consensus that this would be solved within a few days. One participant, Mary, even went as far to comment that,

> There was lots of damage in Southshore, yes … but what you have to think about is how isolated Southshore is anyway and what it's like as a community. In a disaster … you would

> think it would be a bad thing to be isolated from the rest of the city … but you see … once the water man came and the toilets arrived … well I had everything I needed out here. My friends and neighbours are here and my house was fine to live in … so it was almost a blessing to be isolated in a way … don't get me wrong, it was absolutely horrible … but there was no need to be anywhere else quickly really.

Mary explains that the lack of damage, presence of amenities and access to social resources resulted in little need to move. As a result it is difficult to compare this particular context with that of Hurricane Katrina and the Boxing Day tsunami. In these contexts short-term mobility was largely driven by critical housing damage and was often forced in itself. Nevertheless it suggests that housing damage plays a role in causing short-term movement. Furthermore, with particular reference to this context, safety and access to valued resources contribute to patterns of short-term movement. Those who did not move felt safe in their current situation, while those who did move attempted to find it in another environment- one that was either out of the range of future earthquakes, or with valued social connections.

Long-Term Post-Disaster Mobility (Residential Relocation)

The purpose of the following section is to discuss patterns of longer-term mobility, otherwise defined as residential relocation. Figure 28 illustrates where participants moved to after the red-zone deadline, and highlights a number of patterns in choice of residence after moving from the red-zone. The data suggests that the relocation decision making process generally differs from, but in some cases mirrors, previous residential relocation decisions respondents have made. The following sections highlight that, in the aftermath of the earthquakes, the majority of residential relocatees placed emphasis on specific housing and environmental values that they would not have considered in normal circumstances

The section concludes by exploring the factors that affect the timing of the move out of the red-zone. The households participating in the study moved out of the red-zone in Southshore at varying times, dependant on a number of environmental, financial, political and social factors. Indeed, a small number of households (n= 4) were yet to move out of Southshore at the time of writing (September 2013).

Residential Relocation Patterns

With reference to Figure 28**,** it is important to note two things. Firstly, all of these new properties were purchased, rather than rented. The reasoning behind this is discussed later in this section; however it allows us to assume that that these relocations are relatively long-term in nature. Secondly, two of the households that had not moved out of Southshore by September 2013 had yet to find another property to live in.

Figure 28 highlights a number of interesting geographical patterns. Firstly, 11 (38%) of the households have relocated within the 10km coastal strip from the southern tip of Southshore to Waimairi Beach in the north. Three households have relocated within Southshore itself, moving out of the red-zone on to TC3 or TC2 land. One of these households purchased a house less than 100 metres from their previous property. The two households that relocated within this strip just north of the Southshore boundary in South Brighton, have both moved less than 1km from their red-zone property. An preliminary analysis of Figure 28 would suggest that proximity to the coast and distance from the previous household and community are significant factors for these movers.

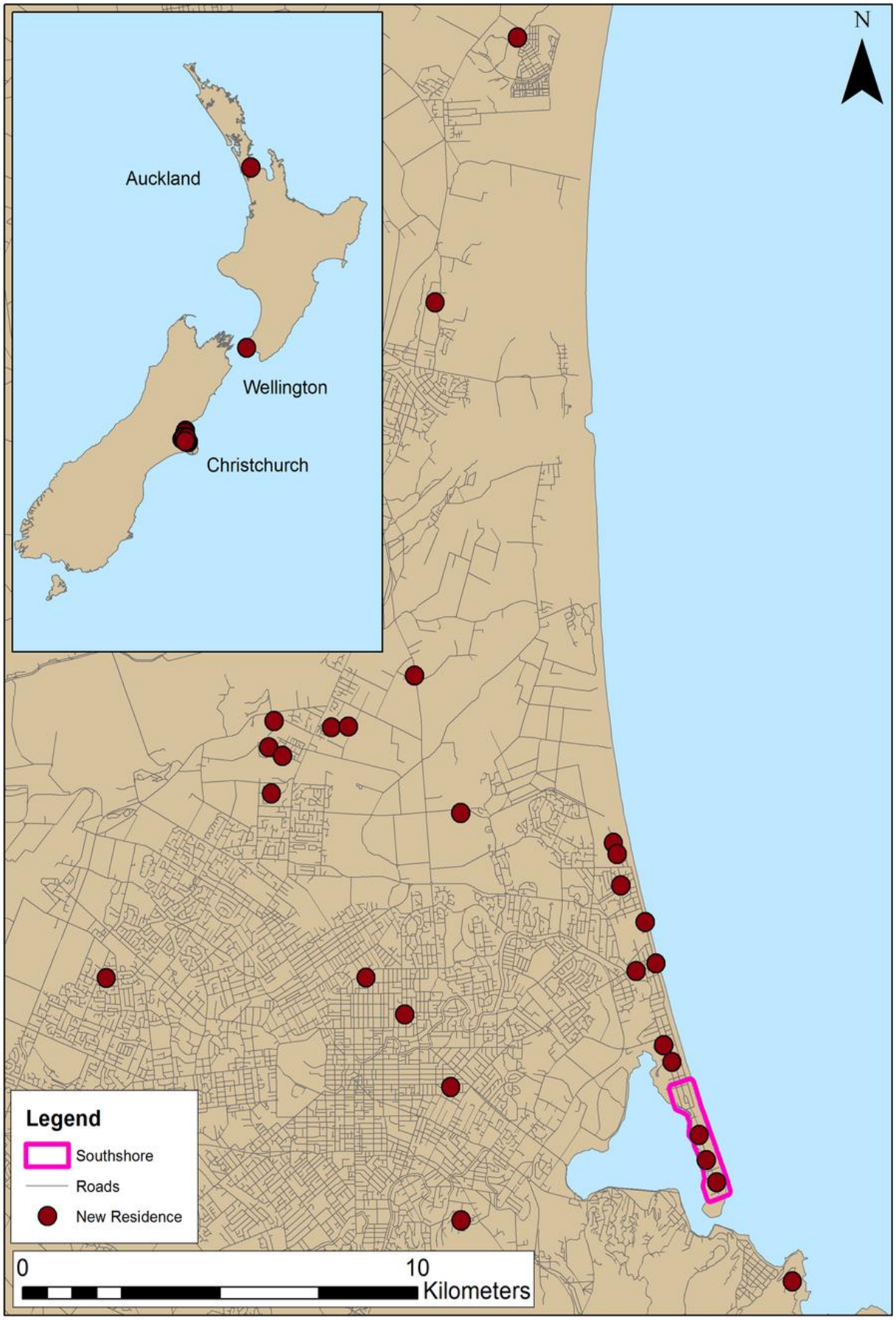

Figure 28: Sites of long-term residential relocation

Secondly, Figure 28 shows a distinct grouping of red-zone movers in North Christchurch, in the suburbs Northwood, Belfast and Styx (8 households, with two further north in Kaiapoi and Pegasus respectively). This is largely a TC2 zoned area. This is consistent with the northward residential flow identified by the Christchurch City Council in the Land Use Recovery Plan (see Figure 17, p. 70). However, with the plan highlighting that the majority of available sections are much further north than Kaiapoi, most of these relocations can still be described as relatively central in comparison. Considering the distance that these properties are from Southshore, and the proximity to each other, the data suggests that these movers may value particular social connections and made the choice to live near one another (this is examined later in this section). Furthermore, the natural environment may also play a role. Although not coastal these suburbs are established near protected wetland areas.

Lastly, it is important to draw attention to the lack of movement into central, southern and western Christchurch. While residential movement in central Christchurch was not expected (the central business district was only recently opened), I had hypothesised that many residents from Southshore would relocate in areas such as Avonhead, Ilam and Yaldhurst- to the west of Christchurch. As Figure 17 (p. 70) shows, nearly 62% (26,326 properties) of available sections under the Land Use Recovery Plan are located to the west and south of Christchurch, yet none of the respondents moved into these areas. Furthermore, only one household has relocated to inner west Christchurch - which was well-publicised as the least damaged area of the city. With property in the west and south still being built at the time of project completion (September, 2013), it is possible that adequate housing was not available when Southshore households were searching for property. These sections, having been reclaimed from farming land post earthquake, were also relatively expensive to purchase, suggesting that the existing price may have provided an insurmountable barrier to purchasing in these parts of Christchurch.

It is relatively easy to make a number of presumptions about the reasoning behind these relocation patterns by looking at Figure 28. However, as has been highlighted by the literature, the concept of choice in such an environment is often blurred. While Figure 28 illustrates some obvious groupings, despite the small sample, the next section seeks to examine the extent to which different variables influenced housing choice in the Christchurch post-disaster context.

Why Live Here? Exploring Housing Choices Before and After the Christchurch Earthquakes

Participants were asked to identify and rank, by importance, the factors which shaped the purchase of both their Southshore red-zoned and new, post-quake homes. As a collective group the four most important values for choosing their pre-earthquake Southshore home were (in order of importance) the residence being close to valued amenities, being familiar with or having past experiences in the area, the residence being affordable and knowing people in and around the area. This, however, changed when considering post-quake property. The ranking of importance for these decisions are shown in Figures Tables 2 and 3.

Table 2: Values when choosing a residential home to purchase pre-earthquake

Rank of Importance	Value when purchasing a residential property
1	The residence is close to amenities I value (such as the beach, or shops)
2	I am familiar with the area, or have past experiences in the area
3	The residence is affordable/good value
4	I know people in, or around, the area
5	I saw potential for property values to increase in the future
6	The area is close to transport routes/public transportation
7	The area is close to people with similar interests to me
8	The area appears safe
9	The residence is close to friends
10	The residence is close to family
11	The residence is close to work

Table 3: Values when choosing a residential home to purchase post-earthquake

Rank of Importance	Value when purchasing a residential property
1	The residence is close to amenities I value (such as the beach, or shops)
2	The residence is affordable/good value
3	The area appears safe
4	I know people in, or around, the area
5	I am familiar with the area, or have past experiences in the area
6	The area is close to transport routes/public transportation
7	The residence is close to friends
8	The residence is close to family
9	I saw potential for property values to increase in the future
10	The area is close to people with similar interests to me
11	The residence is close to work

Pre-Earthquake Housing Choices

The proximity of Southshore to amenities was nearly twice as important to red-zoned residents as the next ranked value when purchasing their pre-quake property. Nearly 68% of respondents categorised this value as high as the scale in the survey would allow. On the surface this appears to be a relatively predictable theme. Previous studies (for example Mulder & Hooimeijer, 1999) have commonly cited that people tend to locate themselves near facilities they commonly use- often sporting grounds, shops, or schools. However nearly all respondents in this study moved to Southshore for some aspect of the natural environment. This is consistent across all age groups and there is no statistical relationship between ranking access to amenities highly and any demographic group. One respondent, Stephanie, stated,

> Close to amenities I value … well you only move to Southshore if you like the water anyway. You could describe the people that live in Southshore as ... an odd bunch, peculiar maybe. There's a mix of old people … some families … yeah, some very wealthy people and some of us that aren't … but we're all here for the same reason … because we appreciate the natural environment. I can see the estuary and birdlife from my lounge window … if I want to put a kayak in [to the estuary] I can do that. I can walk 3 minutes and I'm in the ocean … you only live here if you appreciate those things. Why else would anyone live out this far? It's my little bit of paradise really.

Stephanie touches upon a possible explanation for the ranking shown in Table 2. The data suggests that these households wanted to live near some aspect of the natural environment and were willing to sacrifice other values (such as proximity to work and family) to do so. A number of respondents also commented that they grew up in a coastal area, often further north in Brighton and that they could not imagine living away from the sea. One participant, Richard, stated,

> I grew up in New Brighton … I left for a bit in my teenage years, did the overseas thing … but I always wanted to come back. There's something about being in an environment where you feel at home … and for me that's where I grew up, you know? The smell of the sea … being able to see the sunrise and the sunset … being able to walk on the beach, or letting the kids play in the dunes … for me it's a way of life and I couldn't imagine living in one of these bloody subdivisions.

In this excerpt Richard explores not only the value of environmental amenities, but by recounting childhood experiences he describes the importance of moving into environment that he is familiar with. Furthermore, similar to Richard's example of growing up in the coastal environment, 14 of the 31 households involved in the study had previously lived within the earlier described 10km stretch of Christchurch coastal environment. In reference to the purchase of their pre-quake Southshore home all of this group commented on the desire to stay near a coastal environment. The two most important values in choosing housing before the earthquake, being close to valued amenities and having past experiences in the area, are thus related to one another.

Post-Earthquake Housing Choices

As a collective group the top four most important values for choosing post-earthquake homes were the residence being close to valued amenities, the residence being affordable, the area appearing safe and knowing people in or around the area. Table 3 ranks the importance that placed upon particular values when choosing where to relocate to after the earthquake sequence. The following section explores the reasoning behind the importance on such values and briefly examines how households moving to different geographic areas value different factors.

Whilst the two most important values were rated highly in pre-earthquake housing decisions, they conflict with one another in the post-disaster context. Property prices were lower when many of the respondents moved into Southshore and the suburb was not necessarily deemed 'desirable' for city dwellers to live in. Residents could move relative to their valued amenity, the beach, and could afford to live there. However in the post-disaster context and in a market where house prices were previously high, choosing property based on proximity to valued amenities (assuming it's the natural environment) and its affordability was often difficult. Many respondents were unwilling to move into areas without these amenities, despite often being financially worse off as a result of the government or insurance pay-out on their red-zone property. This often led to a compromise, as those relocating attempted to find an environment they felt happy to reside in, for the price that they were able to pay. One resident of Southshore, Joyce, stated,

> I came here for this lifestyle … for all of this [gestures towards to the estuary view] … it's my little bit of heaven … but there's not any way I will ever get anything like this with what I get paid out. I went to an open home the other day, up in Waimairi Beach. I think it's the closest thing I would get to what I have here … only for the money I can pay I get a box that's half this size … It has no garden … from the second floor I still can't see over the sand dunes … and I feel like I'm in a spaceship compared to what I have here. But it's close to the surf club and close to the beach and that's what I want.

In a way Joyce's experience describes these conflicting values. While previously the cost of property was important to her, the cost to get the environment she particularly valued was affordable. However in the post-earthquake context, to get the environment she values requires a larger investment, making it impractical and unachievable. As a result she has to compromise, in turn losing some of the features she values, such as a home with a garden and a view of the water. Balancing affordability and desirability is, of course, not an issue that is limited to such a context. However, what is important to note is that despite respondents placing almost equal importance on both of these pre and post-quake, the outcomes are subsequently different.

It is relatively unsurprising to see that 'safety' became a more important consideration post-quake. A number of respondents commented that the earthquake made them aware of particular regions' vulnerabilities to extreme natural events. One respondent noted that they moved as far west in Christchurch as they could, as a future event was less likely to "spit out liquefaction". However it is interesting to note that, despite the increased consideration of safety, some respondents believed that safety was no more important, or controllable, than before the earthquake. One respondent, Peter, stated,

> I know you probably expect me to say that I want to move somewhere safer … but to be honest I think these things are out of our control. We weren't really expecting an earthquake here were we? Who knows what's coming next … I don't think you can go round in life choosing where to live based on that fact there might be a storm, or an earthquake or something … I'm living in Southshore for Christ's sake, apparently we'll be first to go if there's a tsunami!

Several interviewees expressed similar sentiments to those of Peter. There had been previous media speculation that those living in Southshore, South Brighton and Sumner would be worst affected in the case of a tsunami. Peter highlighted the fact that people would not be living in Southshore if they were worried about safety in the case of a natural event. Noting that 12 of the 31 households have relocated to an eastern, coastal environment, it seems that the concept of safety is not a factor in the decision making process for some respondents.

Having past experiences in an area, or seeing potential for property values to increase in the future are less important considerations for participants when choosing a post-quake home. Ten of the households in the study stated the opportunity did not exist to move into an area they were familiar with. For example, some households were familiar with largely eastern suburbs that were either red-zone, prone to damage in future earthquakes, or where housing was priced too high. This highlights that the lower ranking may not be a reflection of importance in the move, but an acknowledgement that compromises must be made. Two respondents noted that in a "perfect world" they would stay

in a coastal environment (where they wanted their children to grow up) but current Christchurch housing conditions made this unfeasible. Instead, as one respondent commented, “I have to realise what’s out there for us. Christchurch is moving out north and west and I’m going to have to prioritise what I want and try and find it in those places”. For many involved in the study, with large parts of the eastern city now red-zoned, there was little choice but to move into areas they were unfamiliar with. Familiarity, therefore, became less important as it was seen as unattainable.

The potential for the value of the property to increase in the future was less of a concern for the post-disaster movers. I believe that it perhaps ranked higher than it would in a ‘normal’ Christchurch suburb for pre-quake housing decisions. Many of the residents moved into Southshore when it was largely undeveloped and house prices were lower (52% of the study households had lived in their Southshore property for more than 5 years and 42% longer than 10 years). A number of participants noted that they expected values of their pre-quake house to increase after they purchased it, especially as coastal property became more desirable. One participant bought their section for under $40,000 25-35 years ago and the valuation, on which the government paid them for when they left the red-zone in 2013, was over $320,000. However, many Southshore red-zone relocatees admitted that they did not even contemplate the future value of their new home. One respondent commented,

> I’m buying at the top of the market. I doubt my new house will ever be worth what I paid for it for a long time. There are some smart people out there who will look and probably make a buck here or there … but everyone needs property at the moment, so it’s usually overpriced … I’m not too fussed anyway, you know? I plan on staying in this house for the next 30 or 40 years ... retire in it. If I can sell and downsize when we’re older … then that’s all I’m concerned about.

As previously described there is high demand for housing currently in Christchurch and 7 households used the term “top of the market” when explaining why they are not concerned about future values. The above excerpt also reinforces that these new properties are long term relocations. While this

may conflict with Clark et al. (2009), who highlighted that disaster movers exhibit high rates of residential mobility for three years after the event, 26 of the 31 households in the study agreed that they did not plan on moving again within five years. This pattern is accentuated by the fact the over 65 age demographic are over-represented in this sample. As one respondent, Frank, stated in regards to his new post-quake property, "… they'll be taking me out of this place in a box! Who cares what it's worth then …" Within this demographic the relocatees often do not plan on moving again, therefore future profitability is not a concern. Figure 29 illustrates priorities for a new property as noted by a household in the study. For this particular respondent profitability was not a concern, rather finding a house that met their needs for the longer term (including being on TC1 land that would not require remediation work) was seen as most important.

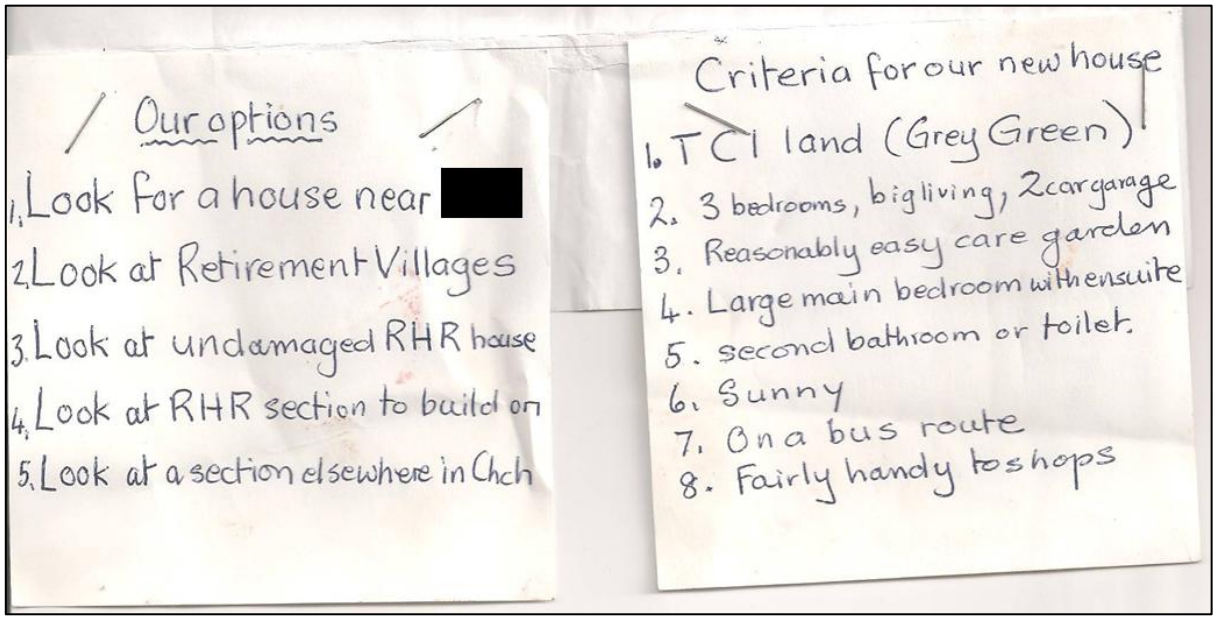

Figure 29: Respondent's list of priorities for choosing a new property

Variations in Post-Earthquake Housing Choice

It is interesting to note the relationships between demographic groups and residential relocation sites and values. Referring to Figure 28 (p. 118), of those who moved into central Christchurch all are

under the age of 50, aside from one. These ‘city movers’ ranked proximity to family and the potential for property values to increase as more important than the other two groups. The data suggests that these movers have taken the opportunity to move closer to valued resources and social connections in the city centre. All households that moved into the cluster north of the city were over the age of 50 and 87% are over the age of 65. These ‘northward’ movers ranked safety as more of a factor than any of the other two groups and significantly higher than the average for the sample. Movers in this group also tended to interpret safety as a social/crime phenomenon too, whereas movers in the other groups tended to interpret it as related to natural disasters.

Households that moved within the 10km coastal strip were aged relatively consistent with the sample as a whole, with 54% of households over the age of 60. These ‘coastal movers’ valued having past experiences in the area, knowing people in the area, and the residence being close to friends higher than other groups. This group, as a whole, valued factors that were related to their previous environment. Obviously there is some form of attachment to the local environment (i.e. the amenities), but the increased importance placed upon knowing the area, suggests the desire to relocate within or near the pre-earthquake environment. The values held by households in these three groups are highlighted in Table 4.

Table 4: Values held by movers into different locations

	Rank of Importance	Value when puchasing a residential property post-quake
Coastal Movers	1=	The residence is close to amenities I value (such as the beach, or shops)
	2=	I am familiar with the area, or have past experiences in the area
	3=	I know people in, or around, the area
	4=	The residence is close to friends
	5=	The area is close to people with similar interests to me
City Movers	1=	The residence is close to amenities I value (such as the beach, or shops)
	2=	The residence is close to family
	3=	I know people in, or around, the area
	4=	I saw potential for property values to increase in the future
	5=	The residence is close to work
Northward Movers	1=	The residence is close to amenities I value (such as the beach, or shops)
	2=	The area appears safe
	3=	I know people in, or around, the area
	4=	The residence is close to friends
	5=	The area is close to people with similar interests to me

Within the sample, there is a small relationship between age and relocation distance from Southshore (r= .351, p= .181). There is no statistical relationship between household income and location choice, or household income and relocation distance from Southshore**.** There is a moderate negative relationship between number of people in a household and relocation distance from Southshore (r= -.371, p= .201). This tends to suggest that people with larger households, or families, are relocating within the coastal movers group. This is perhaps because the respondents with children still wish to remain close to schools in the area. Lastly, and most surprisingly, there is a small relationship between time spent living in Southshore and relocation distance from Southshore (r= .309, p= .05). Put simply, this means that residents who have spent more time living in Southshore are more likely to relocate further away from the suburb post-quake. I do not believe that this is a reflection of low levels of place attachment, but perhaps a manifestation of having a significant proportion of older people in the sample. As previously stated, this demographic (most of whom have lived in Southshore for many years) is more likely to move outside of the coastal area, into a smaller, newer properties north of Christchurch.

Timing the Move: Factors Affecting when Red-Zone Households Relocate

The following section presents and explores the variable of 'time' in relation to residential relocation. During the research process it was noted that, despite the red-zone decision announcement in May 2012, many residents sought to leave at different times. Despite the decision giving households one year to settle and vacate from their properties, 32% (n= 10) of the sample for this study had not relocated by April 31st 2013. Indeed, at the time of writing (September, 2013) four households had yet to relocate- a result of the government giving a select group of residents a 'red-zone extension'. The following sections presents the reader with some of the experiences and reasoning behind the timing of the relocations, as the establishment of a 12 month red-zone deadline received considerable criticism (for example see Hartevelt, 2011a).

Respondents were asked to list factors that influenced the time it has taken to move to their new residence (i.e. why has the move not been made sooner, or alternatively, further down the track). Participants were not provided with a list of options, yet there are a number of common themes (see Table 5). Only one of these touches upon a process that allows movement sooner, rather than later. The other nine describe processes, issues, or personal beliefs that inhibit, or delay movement. This reinforces that many disaster movers are subject to processes that limit their mobility (Black et al., 2013).

Table 5: Respondent's reasons for the time in which they left the red-zone

Reason for timing of move	Percentage of households who noted reason
Difficulty in finding a suitable property (or similar issue with the housing market	45%
Insurance issues (including waiting for a pay-out)	35%
Waiting for a zoning decision (to go from orange to red)	26%
Don't want to leave the area	16%
Waiting on the outcome of legal proceedings against EQC or the insurance company	13%
Issues with EQC	13%
Indecision. Not sure where to go or what to do	10%
Waiting to stay in the house for one last summer	10%
Moved quickly because wanted to get on with lives/forget the earthquakes	6%
It took time to be psychologically ready	6%

Almost half of the sample highlighted that they were struggling to find a property to move into. The reasoning for this was two-fold. All households that noted this issue commented on the increasing housing prices in the Christchurch market. For the 2007 rateable value that home owners were paid out, many felt that the current market conditions did not allow them to purchase a house with the same amenities (for example, number of bedrooms or total land area). For those wishing to down-size, or move into a lower socio-economic part of town, this was not a problem. But for those wishing to maintain their current living standards (argued by Morrow-Jones & Morrow-Jones, 1991 to be a common theme in post-disaster movers) it made finding property difficult. One respondent, Sue, stated,

> I'm not getting paid out for my house really, just the land …. and even then it's only the 2007 value isn't it? The housing market has changed so much in nearly 6 years … maybe if it was still 2007 I could find somewhere similar to live … but now I think I have face the prospect that for the money I've been given … I'm going to live somewhere I'm not happy with … somewhere that's not nearly as nice as where I live now.

As well as the fear that she would have to live somewhere she did not desire, Sue commented that she would have to take out a new mortgage to afford it. She spent almost ten months searching for a property that she could afford and was one of the last households to leave red-zone Southshore under the initial deadline. Also entwined in this idea of affordability is the second issue with finding a property to move into. 12 of the 14 households that discussed the struggle of finding property mentioned that there were few suitable properties on the market. This was generally defined as a property that had the same, or similar, characteristics to their post-quake home. Many spent time looking for properties in the Christchurch environment that had, as one respondent put it, "the same feel, the same vibe, as Southshore". Compounding this issue was the fact that Southshore was one of the last areas to become red-zoned. Many residents felt that they were often vying for the same properties as their neighbours (especially those moving within the coastal zone). One could assume

this would result in red-zoners purchasing property quickly. Instead it lengthened the process as residents spent longer searching for a property they were more satisfied with.

Issues with EQC and insurance companies were also common themes and the data suggests that they can dictate the time in which households can leave the red-zone. Issues with EQC tended to stem from disagreements with the report that assessed the extent of damage to a particular property. Seven households involved with the project had laid complaints with EQC over incomplete, or perceived incorrect reports. A further two had laid complaints over the conduct of EQC assessors in their households. These complaints, and protests, increased the time it took for EQC to process and pay claims. In regards to insurance hold-ups one respondent, Rachel, had hired an independent claims company to fight the insurance process. She stated,

> I'm held up with insurance. They … after the September quake came through and said the house was a total loss. Then when it was in the orange zone they wouldn't look at it any further … and then they came through once it was in the red zone, did a 'scope of works' and said they could now repair it. So that's really held up things. I was so annoyed about the process of the 'scope of works', how it was carried out … I was so really annoyed that I have actually got a firm in called ProClaims and I have got them dealing with it and it's in the process of negotiation at the moment. But … you know … it's still like dealing with … bullies really … I'm entitled to the value of this house, but I doubt I'll get it.

In this excerpt Rachel describes some of the issues that extend the time until settlement can occur, should a resident choose to protest the claims process. It has been well-documented that insurance and EQC claims have taken a large amount of time to be processed (for example see Miles, 2012); a process that is extended should a household decide to question a claim. As a result, issues with EQC and insurance claims lengthen the time it takes for capital tied up in housing to become fluid (or accessible). Despite the sample being relatively wealthy, on average, by New Zealand standards, the ability to purchase future housing is heavily dependent on the acquirement of capital from the red-zone property. While there is no significant relationship between income and time moved out of the

red-zone, the two households in the study that relocated the quickest had significant amounts of fluid income available through other sources. One of these noted,

> We had a feeling that our house in Southshore would be red-zoned … we were quite lucky in the fact that we owned and rented out two flats in Avonside that were destroyed in the September earthquake. We got paid out for those pretty quickly after that, back when there weren't nearly as many claims, so it was an easy process. We were able to use that money to set us up somewhere in the meantime and once we get paid out for [the Southshore property] we can look at what we want to do with that.

It should be noted that parts of Avonside (an eastern suburb near the Avon River, in Christchurch) were the first areas to receive a land zoning decision. In this case, the release of fixed capital from the damage to other properties had allowed the household to move sooner than other Southshore red-zone residents. Therefore there is consensus, amongst the households that noted issues with EQC or insurance, that these organisations affect the time in which residents are given the capacity to leave the red-zone. While the release of the red-zone decision presumes that people in respective zones can 'move on', there is often reliance on governmental and private organisations for this to occur in a timely manner. Given the extent of the disaster, and the capabilities of organisations in the New Zealand context, it seemed inevitable that delays would occur.

The psychological aspect of moving and the impacts this has when households leave the red-zone is interesting to explore. The next section explores more in depth the role that place attachment and actors such as EQC and insurance companies play in affecting the experience of forced relocation. However, 16% of respondents described that not wanting to leave Southshore extended the time it took to relocate. 10% wanted to stay for the summer (Dec-Feb 2013) and 6% said it took extra time to be psychologically ready to move. Despite waiting in excess of a year to be zoned, these households felt that extra time was needed to prepare themselves for the move. The respondents that noted these 'attitudes' were amongst the last to move from Southshore, all having moved within two months of the June 2013 deadline. Also common amongst these participants was the lack

of a desire to search for a property. Whilst the attitudes highlight a wish to stay as long as possible in Southshore, this translated into a delay in entering the property market. Rather than purchasing or searching for a property and moving in at a later date, these respondents tended to hold onto the feelings of place attachment, and then search for a new property once they felt that they could move on. Ultimately this extended the time they spent in Southshore, but accentuated the difficulties in both finding a property and leaving within the government imposed deadline. One respondent, Amy, commented in her first interview in February 2013 (4 months before the deadline),

> I'm still all over the place really ... I've only just got into the frame of mind where I can look at other places. I've been… probably the last week or so I have been seriously looking at TradeMe every night for the new things. What I have found is … I thought I could try and look at other areas … but … I love just this location exactly where I am … with the … being able to watch the water come in and out every day. It's pretty special. I don't want to leave.

Amy had refused to look at the property market before she felt ready to move from her Southshore property. However with limited time and in an increasingly difficult property market she found it challenging to find somewhere that she wanted to move to. Later in the interview she stated,

> Well … there's one [house for sale] just over the road, I don't know if you saw the sign there … I rang up about it and the agent said she needed to talk to the tenants, there seems to be a few wee issues there … but … she immediately says you can always put an offer in without looking at the place. Here you are thinking 'is it getting to this stage?!' Have I left it that late that I have to buy a house over the phone, without looking at it?

Amy's comments highlight that suitable property is more difficult to find closer to the red-zone deadline. This was a theme apparent in every household that noted they 'wanted to stay for the summer', 'didn't want to leave Southshore', or 'weren't psychologically ready to move'. The mental preparation process required to relocate by these groups only accentuated the time it took to leave Southshore, as the actions required to leave (for example, purchasing another property) are left until

a later date. In the end Amy purchased a property that "[was] over-priced, too big for [her], in the wrong place, and [she] won't live in it for very long."

Forced Relocation, Well-Being and Emotion

I now wish to present and explore some of the participant's experiences in regards to forced relocation and being labelled as a 'red-zoner'. Participants were asked to fill in a subjective well-being (SWB) questionnaire both before the move from Southshore and once they had relocated. These participants were also asked to qualitatively explore and discuss the feelings associated with being relocated from their red-zone properties. The following sections are set out as such to demonstrate the variance in SWB and experiences pre and post relocation. As the following sections illustrate, perceptions of control over household circumstances, issues with organisations involved in earthquake recovery, and time spent in the red-zone all heavily influence the experience of Southshore red-zone homeowners.

The Southshore Experience: Life after the Red-Zone Announcement

As predicted, every household involved in the study expressed some form of disagreement, or disappointment towards the zoning outcome. Embedded in this were three distinctive attitudes/behaviours that dictated the experience of individual households. Firstly, there were households that exhibited a lack of understanding regarding aspects of the zoning process. These households were unlikely to protest or dispute the decision, but often felt alienated and confused by processes that, as one respondent stated, "… seem to happen at a level much higher than us". Secondly, a group of households existed that understood the zoning decisions, but disagreed with the conclusions that CERA published. This group was highly likely to publicly protest the zoning process and more likely to move out of Southshore closer to the deadline than other households. Thirdly, and most commonly, there were households that accepted, and often pre-empted, the red-zone decision and were resigned to the eventual relocation. This group often had largely negative

experiences and spent the majority of the time focusing on attempting to minimise the loss of material and social resources when relocating.

The group that exhibited a lack of understanding and reasoning as to how CERA created the land zones were most likely to note a perceived lack of control over the moving process. All households in this group (n= 7) exhibited disbelief that their house was in the red-zone, due to a lack of damage to the house itself. I believe that the majority of these households understood that the zoning referred to the land underneath the house, but struggled to perceive that they were losing material resources to an intangible threat (being future safety, or damage to soil). One respondent, Lesley, described her confusion,

> It's the cards we've been dealt I guess … but when you query … they don't give you any answers for that at all. One of my nieces has a friend who had a lawyer and works with insurance things and she had apparently talked to her about it and this friend of hers is going to come round one day and chat to me, just to explain it, or try and explain what they are doing. I'm trying to understand … I just don't know why they take off so much. Why do they take off what they take off?
>
> I don't even understand why I'm in the red-zone actually … it's not like I'm on the estuary front is it … I just don't understand it really … but like I said, we've been dealt these cards ... now we just have to play our hand. I was going to move … I had actually saved up enough money and had even bought the undercoat to paint the house and I wanted to move in to something smaller. I've got arthritis and you have to be aware of things like that … but who knows what I can do now.

In this excerpt Lesley's experience is synonymous with others in this group; an apparent confusion as to why decisions were being made, but having the presumption that someone was making them on her behalf. Interestingly 6 of the 7 households who explored this confusion were over the age of 60 and retired. Furthermore, all 7 households had indicated that they had not planned to move from their Southshore red-zone property ever again, before the zoning announcement. In many ways this

response could therefore be seen as one of disbelief, the proverbial rug being pulled out from underneath their feet.

These households exhibited what could be termed as 'resignation'- believing that the process is bigger than them, which makes comprehension difficult. In many ways I believe that these households choose not to comprehend the situation, in order to allow the 'moving on' process to begin. It should be noted that these households were often reliant on close social resources, such as family and neighbours, to complete and submit red-zone documentation to CERA and subsequent insurance companies.

As previously mentioned, there is also a group of households who understood the zoning decision, but disagreed with the decision making process. This seems to heavily negatively shape their post-disaster experience and mobility. One respondent stated,

> Initially I protested … I'm still trying to get explanation about how or why they drew the boundary where they did … because my … looking at all the data … to me the boundary should have been drawn a few houses back that way, or it should be up at the corner if you go the other way. But I think it should be that way, particularly if you look at Seaview Place, and up further by Brighton School, up by the bridge, there seems to be some consistency. I'm trying to get the data and explanations out of CERA because working for a science organisation I want decisions to be evidence based … I want to know.
>
> By the same token I am looking for other places. I have to move because it's an act of parliament, there's no way they are going to overturn the whole decision etc.

The above excerpt highlights the apparent lack of transparency in the zoning decisions. This particular respondent protested by submitting an official information act request to the government in regards to the process which their property was zoned. This was a similar process followed by a number of households in red-zone Southshore. In response to being asked if he agreed with the red-zone decision, one respondent noted,

> Initially I didn't, and it's a good question because, you know … I guess when you look at it from a pragmatic point of view you think oh well, sure … the cost of remediation for all the land all the way down the Southshore is probably going to be fairly high, and, you know, governments and others have to make decisions … but I think they've made the wrong one.
>
> You know, I think it can be remediated, but faced with decision making at their time with Tonkin and Taylor [the geotechnical engineers] who went and did all that land assessment … I mean it probably all looked fairly overwhelming, but, you know, give it a year or two it'll look … the remediation process will look a lot less daunting and would have been achievable if it had been delayed … instead now I'm dealing with having a bloody expensive lawyer to fight all of this.

This respondent picks up upon a common theme amongst the households that shared the view that the Southshore red-zone decision was incorrect. Many felt that the red-zone decision was a result of the government deeming rebuilding to be too costly and time consuming. However, despite the initial protests such actions were futile as households were unable to protest individual red-zone decisions. Ultimately protesting and publically appealing the red-zone decision seems to be linked to a more negative post-quake and relocation experience. Despite these households recording the highest levels of place attachment out of the sample, they also were (on average) most likely to strongly agree with the comments 'I had little choice on where to live', 'I felt like the decision to move was out of my control', and 'If I had the choice my new residence would be closer to my older one'. Furthermore, this group was least likely to agree that they were happy with the location of their new residence (before moving into it) and were more likely to leave closer to the June 2012 red-zone deadline than households outside of this group.

However the majority of households accepted, and often pre-empted, the red-zone decision and were resigned to the eventual relocation. In many ways the experiences of this group were largely analogous. I do not refer to this in regards to mobility behaviour (which has been explored, and will be further in the next findings chapter), but in regards to the experience of being red-zoned itself. One respondent, Lisa, described the experience,

> It was, I suppose … kind of a shock, you know … It meant I had to move and I would have rather not have had to do that. But a lot of people go 'well aren't you lucky that you're not TC3' and so yeah, but if you're red and haven't actually got enough money to buy another house, then you're not lucky. There's no luck in it. It's just … get out of your home … you know, decide whether you're going to stick around for your adult family or whether you're going to move somewhere with … your parents and where your friends are.

Lisa touches upon a number of important issues. Firstly the obvious shock and disbelief in becoming red-zone is apparent. She then explores the choices that individuals have to make in regards to choosing another home. However, and most importantly in this excerpt, Lisa states that people share the view that TC3 is a worse outcome than being in the red-zone. This was a common theme amongst this group. Whereas the group who disagreed with the red-zone looked upon TC3 as a positive outcome, this was not shared by everyone within the red-zone. Households either, held the belief that they were not the most severely affected after the earthquake or, attempted to infer a positive slant to their situation. In response to a query if they would move onto TC3 land one respondent stated,

> No bloody way! No, see what's going on round here. You know they're drilling continuously down here. They're digging up drains. There's no sewer in the street. No, I think there's areas that … need a lot to be done to it to fix it, if they ever fix it. There's no certainty in moving on that type of land.

This respondent argues that having TC3 land is a potentially more distressing outcome than being in the red-zoned. This opinion was shared by the majority of households in this group. One stated,

> Of course the place to be is TC2 … reds bad and it has been the most traumatic two years of my life … but in a way I get an 'out'. I can go to my new home up the road, move everything there and set up my life again. But if I was in TC3 … well I feel so sorry for the young families stuck in there. Last I heard you can be waiting up to 15 years for a repair … so you can't sell your house … a broken house on TC3 land isn't worth anything. So you have young families stuck there … no money to buy another house, can't sell the broken one … they're stuck. So if I have a bad day, and I do have a few of them, I sit back and think that I could be in a worse situation. There are people out there with bigger problems than me.

As discussed in this excerpt, many red-zone residents feel that their zoning allows them to move on with their lives. Whilst forced acquisition of their land is seen as traumatic and intrusive, these residents believe that they are given control over their mobility and relocation patterns in the future. TC3 households, however, are immobile by comparison. They may have a safe house to live in but do not have the option of relocating in the near to mid-term future. In many ways this adds an element of positivity to the red-zone 'plight'. Given the close proximity of differing land zones in the Southshore neighbourhood (refer to Figure 21, p. 84), red-zoners could associate their experiences to those with different outcomes. While the initial shock of losing both land and property was stressful, 20 of the 31 households in the study indicated that, by the time of relocation from Southshore, they would rather be in the red-zone than have TC3 land.

Pre-Relocation Subjective Well-Being

Before relocating, participants exhibited relatively low levels of SWB. SWB scores were calculated out of a possible 25 and then multiplied by four to give a score out of 100. Before leaving the red-zone the average score was 60.5. This ranks lower than the levels of SWB reported at a nationwide level in 2010 (Ministry of Social Development, 2010), although the measurement scales differ. Almost two-thirds (61.3%) of the sample reported feeling calm and relaxed *less than* half of the time, whilst 51.6% described themselves as being cheerful and in good spirits *less than* half the time. Interestingly 'daily life being filled with things that interest them' rated highest, with 51.6% stating this was the case more than half the time. The data suggests that this is the result of having to find and purchase new property which, despite being a largely negative and difficult process for most, was seen as an opportunity to some. Also interesting to note is the disparity in feeling active and vigorous. Whilst 45.2% of respondents stated they felt this most of the time, 22.6% stated they felt this *at no time*. I believe that the elderly demographics' interpretation of the question may have contributed to this however, with many noting that they had not felt active or vigorous in years.

There are several relationships to highlight within this. There is a very weak positive relationship (r= .214, p=.05) between age and overall SWB. This suggests that older populations have higher levels of SWB (at least for the two week period in which the scale measured). This combined with a positive relationship between age and feeling calm and relaxed (r= .353, p= .04) highlights that the older demographics perhaps have less concerns when moving, although the relationships do not suggest this is significant. For example, one couple over the age of 65 commented that, "… we just have to move what we have here really … I'm sure wherever we go will be nice and we'll make some friends". This is compared with families and younger couples, who have to consider children's schooling, work, and other family concerns when moving. Furthermore there is a moderate positive relationship between income and feeling calm and relaxed (r= .353, p= .03), but a negligible relationship between overall SWB and income (r= .157, p= .03). Whilst discussed more in depth in Chapter 6, the data suggests that access to fluid capital (such as income) alleviates some stress about future circumstance, but does not lead to an increase of perceived control over the relocating process.

Post-Move: Forced Relocation, Well-Being and Affect

Building on the SWB trends and broader red-zone experiences described previously, the next section aims to briefly explore participants' experiences once the relocation has occurred. The relocation and settlement process reinforces both feelings of loss and opportunity within the participants of this study. Whilst largely negative experiences are recorded about the relocating process itself, participants have settled and adapted to their new environments surprisingly well. Thayer Scudder (2005) described that coping and adjustment to new environments may take a number of years and result in a noticeable drop in living standards. In this study, however, the majority of relocated participants quickly overcame the multi-dimensional stressors and adapted relatively quickly as a whole. This process is explored below.

After relocating, the majority of participants exhibited significantly higher levels of SWB. Before leaving the red-zone the average score was 60.5. Of those who had moved by the second interview the average SWB score was 85.3- an increase of nearly 25%. None of the participants overall SWB levels decreased between the two points of measurement. Participants were more likely to strongly feel cheerful and in good spirits once they had relocated, with 74.3% of respondents stating they felt this more than half the time. 54.3% of participants felt calm and relaxed more than half the time, whilst 46.7% of participants stated their life had been filled with things that interest them either most of the time, or all of the time. Nevertheless, participants were less likely to 'wake up feeling fresh and rested' and recorded feeling active and vigorous at levels similar to pre-relocating. I believe that, despite responding positively to the new environments, many respondents were still dealing with the logistics of relocating. At the time of the second interview many participants had been in their new property for less than two months and were still involved establishing a new household.

These increased levels of SWB are somewhat surprising. As indicated in both Thayer Scudders stress and settlement process, and the IRR model, it is expected that the moving process and resultant loss of resources would lead to lower SWB, at least initially. Only having two data points limits the inferences that can be made and further variations in SWB are expected. However it is interesting to note that the participants who had not relocated by the end of the research period, due to red-zone extensions, experienced decreasing levels of SWB. These households described the experience of living in a neighbourhood that was gradually losing its community. Whilst connection to place and the natural environment was important to participants, seeing the loss of valued social resources affects the experience of being in such a zone. One respondent commented,

> Is Southshore like it used to be? Well … no. It's like a bit of a ghost town really. I used to go down to the local pub and talk to people, but that's gone now…every day something or someone disappears you see ... they've gone, they've gone, they've gone [pointing to neighbours]. I love this community and this place … but to me it's not the home and

> community I had before the earthquake … it's as suburb with a noose hanging over its head … a horrible place to be

As highlighted in these comments, the time spent in Southshore appears to directly impact the post-disaster experience. Despite exhibiting signs of strong place attachment, the relocation allowed residents to regain social resources they previously had lost. This idea was also prevalent in the relationships between demographic/moving variables and SWB. There was a moderately strong relationship between moving out of the red-zone earlier and levels of SWB post-move ($r = .371$, $p = .045$). This reinforces the idea that moving earlier leads to higher levels of SWB. However these households had spent more time in their new property at the point of measurement and had more time to adapt to their environment. I believe it is therefore impossible to distinguish between the potential relationship and whether these households were simply further along in the stress and adjustment process.

During the interviews participants were asked to use a maximum of three words to describe their experience of the zoning process (going from orange to red), the relocation process (from finding a property to the relocation itself), and the settlement process (settling into a new home). Figure 30 illustrates the words that participants used to describe these experiences. Read vertically, the list places the most commonly used words in descending order. Both the zoning and relocation processes were qualitatively explored in previous sections. However what is most noteworthy is the transitioning nature of the words used to describe each process. Participants tended to use terms that described a form of discriminatory loss when discussing the zoning process. In describing the relocation process participants tended to use terms that portrayed a sense of a formidable, demanding task. All terms in both of these groups were negative. Nevertheless, the terms that were used to express the settlement process are overwhelmingly positive. 76% of households that had relocated by the end of the research period used the term 'relief' when describing how it felt to have moved into a new home. Furthermore, 52% of the households used the term 'happy' or 'happiness'.

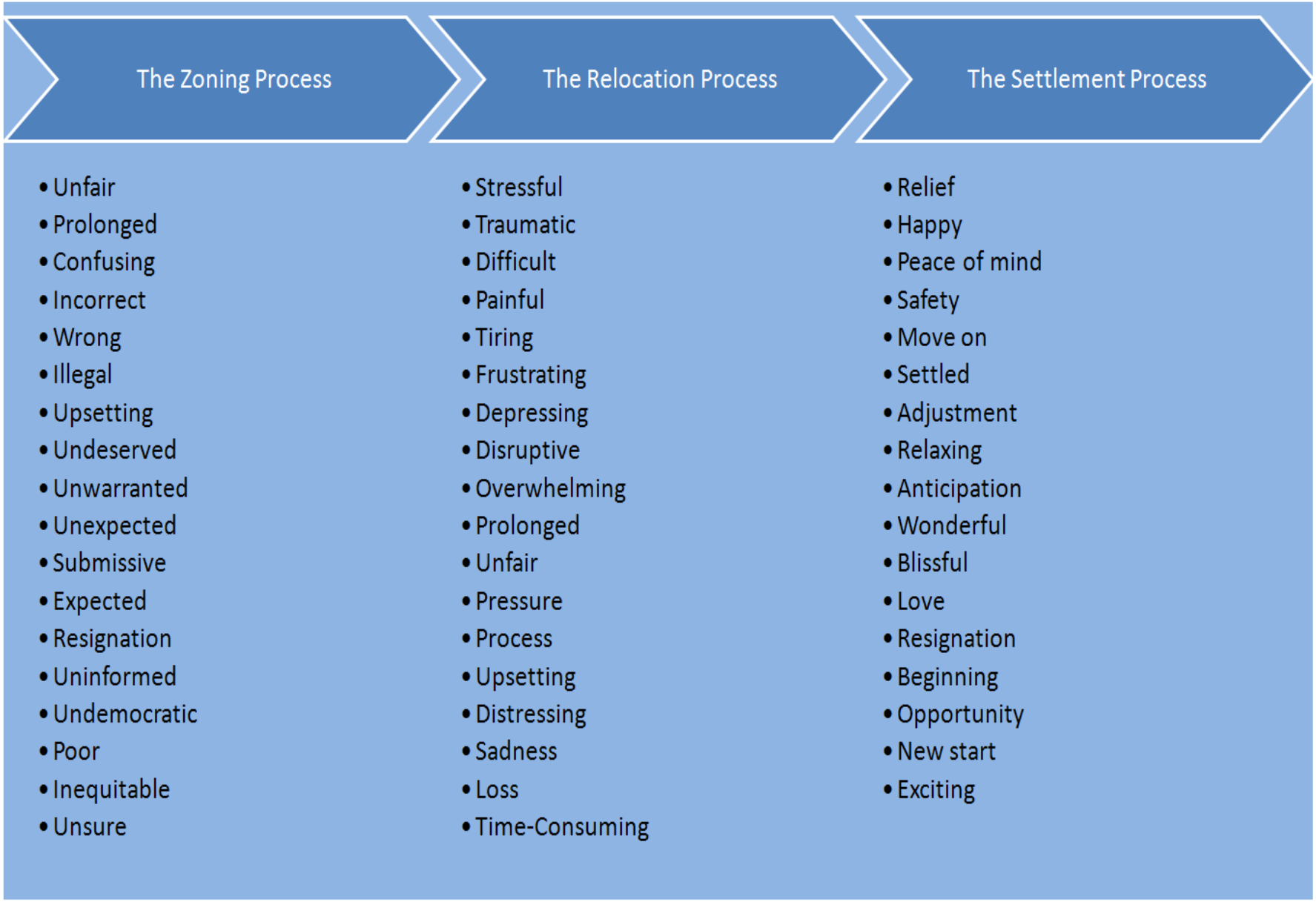

Figure 30: Words used by participants to describe the stages of relocation

A number of residents commented about moving from a negative to a positive environment. One respondent, James, stated,

> You're in no-man's land until … a decision was made as to whether you were going to be red or green. So soon as the decision was made that we were red we then had to get off our backsides and say what we going to do … looking back, it was an awful process really … but to be able to sit in our new house and say 'we survived that'… it's such a feeling of relief in a way. I never thought we would be happy leaving our house in Rocking Horse Road … but I think we can safely say we're happy here, it's got such a nice feel to it.

In James' scenario, he and his wife were extremely reluctant to leave Southshore, having lived there for over 25 years. Whilst they had planned to downsize their property in the future it wasn't an immediate consideration and he would have rather done it on his own terms. Nevertheless James describes feelings of positivity in both being out of the red-zone and into a new property, a feeling that was shared by the majority of participants. Despite every household describing negative experiences with the moving process itself and some of immediate difficulty in settling, every household indicated some form of positive adaption to the new environment.

Participants were also asked to describe and explore the extent to which they felt happy in their new environment. Prior to relocating participants were asked if they were happy with the location of their new residence (if it had been purchased). 24% of households disagreed with the statement, 52% agreed and a further 19% strongly agreed. After relocating participants were asked the same question. 57% agreed with the statement, similar to pre-relocation expectations. Participants were also asked, post-relocation, to evaluate the comment 'I am happy with my new *property*'. 65% of households either agreed, or strongly agreed, with the statement. Satisfaction with the property, therefore, is higher than satisfaction with the location of the house. This theme will be explored in Chapter 6, but emerges as a result of largely opportunistic moving.

In relation to Scudder's stress and settlement process (2005) it seems that perceived control over the moving process affects the adaption capacity of relocated households. Scudder highlights that,

after moving, resettlers living standards often drop as adjustments are required to adapt to an environment that is both unfamiliar and unexpected. However, in the context of the Canterbury earthquake, the red-zone deadline gave resettlers 12 months to find suitable property to relocate to. This gave red-zoners an aspect of control over their situation, although this may have been perceived as limited. Participants were asked both before and after relocation whether they felt that the moving process was within their control. There was a strong relationship between documenting high levels of perceived control both before and after the move and satisfaction with a households new property ($r= .695$, $p= 0.05$ and $r= .768$, $p= 0.04$ respectively). Participants who noted that they felt in control of their situation pre-relocation were more likely to have set plans, find new property earlier and felt that they were less reliant on external actors (such as insurance companies and EQC). The data suggests that this sense of control enabled households to more effectively prepare for the move and adapt to the environment once the relocation had occurred. As a result the negative effects of relocation as noted by Scudder (2005), Cernea (2000) and Riad & Norris (1996) can be somewhat mitigated.

Government and the Private Market in the Relocation Experience

The role of 'post-disaster actors' was also important in shaping the experience of forced relocatees. As previously discussed, and explored further in Chapter 6, post-disaster mobilities are shaped by the intersection of a number of social and political processes. Entwined in this are the political processes and organisations that created the zoning system and the private market that derives the financial reimbursement for lost resources. Participants in this study highlighted the extent to which the relationship with these organizations affects the overall relocating experience.

Seventy-one percent (n= 22) of the households in the study felt they were not receiving fair compensation for their property from either EQC or their private insurance company. All households stated that they knew of somebody who felt they were receiving unfair compensation. While ninety-four percent (n= 29) stated that they felt EQC or insurance procedures were flawed in the way they

processed and accepted claims. Furthermore, 77% of households stated had concerns over the way in which either, EQC or insurance assessors conducted themselves in their properties, or with the final report that was produced by either organisation. One respondent (Frank), whose comments are worth quoting at length as they discuss a number of themes expressed by households in the study, stated,

> You know if I was to be honest with you without trying to be emotive, I would describe the insurance companies and EQC as equivalent to the finance company directors that are currently going to jail … because effectively what they're trying to do is they're cheating people. The insurance companies are working on the basis that ninety percent are going to roll, ten percent are going to fight. So they're happy for the ninety percent [because] they're going to save literally hundreds of millions of dollars by cheating them. And I can't describe it any other way, it's pure cheating people out of their rights.
>
> But when you start thinking of when somebody has got a full replacement policy like I have … so therefore my house should be fully replaced. But … what the insurance company are doing effectively is they're saying 'we assess your house as a repair, being it's on red zoned land' so it'll never be repaired … and they're doing these shonky assessments … so you get your repair and you go out to the market and you're expected to buy a house and a land for the repair cost of where you're at. And yet your insurance policy says that you are entitled to full replacement.
>
> They have things in the contract that you pay every year for years and years which say prompt service … all these promises about a fair and transparent process. This is all in my policy and everybody else's. You know, by the time we were sort of red zoned way back and here we are coming in to 2013 … I haven't seen any promptness … I mean, if you looked atall the emails, and there's literally been hundreds that have passed between me, EQC and the insurance company … it's all one-sided. Like, what the hell's happening? What's going on? Where's there information? Why aren't you doing this? Why aren't you doing that? You know, why haven't you given me … an assessment? It's all one-sided, so everything to do with your policy, that you have a contract that you've paid all these years in good faith … has just gone out the window. There's something seriously, seriously wrong.

Frank's story is similar to many others within the Southshore red-zone in that it describes both discontentment towards EQC and insurance processes and also disagreement with the process that decided red-zone property payment. In many ways it is difficult to disassociate relocation experiences from these organisations. It is, after all, the government intervention through CERA that resulted in the creation of the red-zone itself. However, there is a differentiation in the experiences of respondents who noted positive and negative relationships/outcomes with both EQC and private insurance companies. The nine households who felt that they were receiving fair compensation from both EQC and insurance companies all reported higher levels of SWB pre-relocation than the average for the sample. They also all indicated higher average levels of perceived control over the moving process, pre-relocation. Whilst I do not believe that these results stem solely from the experience with EQC and insurance companies, it shows the ability of such organisations to affect how relocatees perceive the post-disaster environment.

In many ways one elderly respondent, Mary, summed up the capacity of such organisations to effect the relocation and post-disaster experience. She stated,

> EQC and Gerry Brownlee … all those people … I don't think they have a hidden agenda. Many people say they do but … they are trying to do things in an almost impossible situation. On one hand they have to consider our future safety, but on the other hand … well they're playing with our lives aren't they? I think that's the root of the problem sometimes … when they have to deal with people's entire lives, their houses, everything they own … well of course there's going to be upset people. You know, when we were in the orange zone you're waiting for one letter … one letter to know if your life is going to change forever. It's the same with the insurance really, waiting at the mailbox for that one letter that could either keep your life going in the direction it was, or take it downhill pretty quickly. Yeah … yeah it's hard when so much comes down to that one bit of paper.

In this excerpt Mary explores the significance of the decisions made by EQC and other organisations involved with the earthquake recovery. By describing the individual decision making processes as "… deal[ing] with people's entire lives … " which "comes down to that one bit of paper" Mary touches

upon one of the issues that were raised red-zone residents. The majority (n= 17) of the group that felt disaffected by EQC and insurance processes/compensation noted the lack of support and communication by these organisations. A number of households commented that they often discovered information from the media, before receiving any communications from EQC. As an example, during one interview I mentioned that I had read earlier that morning that a red-zone extension had been granted to a group of red-zone residents. The interviewee was extremely surprised to hear this, given that they were part of this group and had yet to receive any communication as to its success. This lack of information sharing and communication appeared to reinforce the feelings of disillusionment with the 'system' and emphasise an individual's lack of control over the post-earthquake environment.

Conclusions

The purpose of this chapter was to present and explore the post-disaster mobility patterns of red-zone residents from Southshore, after the Canterbury earthquake sequence of 2010 and 2011. The findings highlight a number of patterns in regards to short term and long term residential movement. Of those who residentially relocated in the short- term, it appeared that the movement was driven by a lack of amenities in their Southshore property and a desire to escape further earthquakes. The relocation region itself was dependant on the location of social connections.

A number of patterns were evident in long-term residential relocation choices of participants. The majority of participants stayed in the Canterbury region and tended to move into central or coastal environments, or in a northward direction. The data suggests that the relocation decision making process generally differed from previous residential relocation decisions respondents have made, with increased value placed upon concepts of safety and affordability in the post-quake environment.

The results also highlight that, after relocating, the majority of participants exhibited significantly higher levels of SWB. Perceived control of the relocation process and experience with government and private organisations appear to influence participant's perception of the disaster. Participants who noted that they felt in control of their situation pre-relocation were more likely to have set plans, find new property earlier and felt that they were less reliant on external actors (such as insurance companies and EQC).

The purpose of the following chapter is to present and explore a provisional typology of post-disaster movers. Both international literature and the results of this study highlight a number of unique post-disaster relocation behaviours. The results that have been explored in this chapter describe different experiences and perceptions of the post-disaster environment. As a result I believe that four types of movers exist in this particular environment that warrant discussion. The purpose of the next chapter, therefore, is to describe these movers and discuss the extent to which they are applicable to other post-disaster contexts.

Chapter 6: Post-Disaster Mobilities in Southshore: Towards a Typology

Introduction

The previous chapter highlighted how participants were exposed to various political, economic and social circumstances that affected their mobility patterns. Some of the individual behaviours and patterns discussed correspond with the post-disaster literature, whilst some of them appear specific to this particular context. Drawing upon both international literature and results from this study I wish to create a provisional typology and argue that there are four 'types' of movers in the post-disaster environment. I have termed these households the 'Committed Stayers', the 'Environment Re-Creators', the 'Resigned Acceptors' and the 'Opportunistic Movers'.

Table 6 highlights some of the key differences between each type of mover. The Committed Stayers (CSs) were defined by their immobility and resistance to relocation. As shown in Table 6, the CSs presented the lowest levels of SWB pre and post move, as well as the strongest level of place attachment of any type. CSs, on average, left the red-zone the latest. The Environment Re-Creators (ERCs) were defined by their attempts to re-create or retain aspects of the Southshore environment in their new property. ERCs exhibited relatively low pre and post move SWB, although an increase was noted post relocation. The ERCs also exhibited relatively strong levels of place attachment to Southshore, which may explain their desire to retain aspects of its environment.

The Resigned Acceptors (RAs), on the other hand, were defined by their resigned apathy towards mobility and residential relocation. They exhibited lower than average SWB pre and post relocation. On average RAs moved out of the red-zone nearly 8 months after the zoning announcement, which was quicker than both CSs and ERCS. Lastly, the Opportunistic Movers (OMs) were movers that relocated relative to pre-earthquake plans (that were brought forward by the quake), or moved due to opportunities that arose from the quake itself. OMs exhibited, by far, the highest levels of SWB

pre and post relocation. The OMs also presented the lowest levels of place attachment to Southshore and, on average, moved out of the red-zone the quickest.

This chapter describes the experiences of each of these groups and explores the way in which it dictates mobility behaviours. The characteristics of each type of mover are further explained and then qualitative data from this study is presented in a narrative style, as well as using extracts from research interviews. The creation of a typology is often an attempt to simplify a complex set of circumstances/processes. As a result households may not fit 'neatly' into a particular type. The majority of households in the study exhibited behaviours consistent with one particular type, however there are some instances where they may exhibit behaviours similar with another group.

In doing so I acknowledge and discuss both my subjectivity in placing households in such groups, as well as exploring whether household's mobility behaviours are exclusive to one group, or type.

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Table 6: Red-zone movers after the Canterbury earthquakes

Type of Mover	Mean Subjective Well-Being (SWB) (1=low, 100=high)		Mean Place Attachment (PA) (1-30)	Time taken to depart Red-Zone after Announcement (months)	
	Pre-move	Post-move		Mean	Standard Deviation
Committed Stayers (CSs)	52.7	71.9	29.2	14.3	1.63
Environment Re-Creators (ERCs)	58.3	79.2	27.8	8.3	5.2
Resigned Acceptors (RAs)	60.8	80.8	26.5	7.6	3.9
Opportunistic Movers (OMs)	66.9	93.4	20.1	6.8	4.9

The Committed Stayers (CSs)

In various ways, CS households resisted relocation. Their actions were defined by their immobility rather than their relocation aspirations. Households in this group strongly disagreed with the CERA red zoning of their land and usually sought further legal advice or explanation about their rationale for it. They also wished to stay in their property in Southshore and sought to extend the date of their departure from the red-zone. Whilst red-zone decisions could not be appealed, CSs usually publically disagreed with the zoning designation and the process behind it. CSs tended to also highlight issues with the insurance and EQC pay-out processes.

In what follows I present the experiences of two Southshore households which exemplify the CS group. Both received red-zone extensions and neither had relocated by the end of the study (September 2013). Their resistance to residential relocation is evident, despite the varying experiences and household backgrounds.

CS Household 1: John and Wendy

John and Wendy are both retired and moved into their Southshore property in 2008. They exhibited extremely high levels of place attachment (PA= 30). John grew up by the sea, in New Brighton, whilst Wendy originated from Australia. They are New-Zealand European and are both over the age of 70. They owned their red-zone property, mortgage free.

Both John and Wendy moved into their Southshore property largely because of the view and the natural environment. In the first interview John stated,

> I just love the view out there! I just love it! Even though I was born in central Brighton … I love this. This is a wee secret this place, you know, and as you turn the corner it's like you're going on holiday and we've … in fact we thought it was a holiday for years. This little piece of road down here is unique and … in the five years we've been here, you know, I've just so much enjoyed the characters and the little piece of paradise that we have.

After the earthquake John and Wendy's property suffered moderate damage. The land in the front of the house subsided into the estuary and one side of the house slipped forward. There was significant cracking in the top-floor of the house and an extension partially separated from the house itself. However John set about fixing these himself, making the house, in his words, *"*perfectly liveable again, but not perfectly normal.*"*

Despite Wendy having a particularly traumatic experience in the February 2011 quake, the couple did not move out of their home immediately after the earthquakes. They in fact resisted moving, spending as much time in their Southshore home as possible. Whilst not exhibiting the strong anti-governmental feelings that many in the CSs group displayed, John and Wendy's attachment to their Southshore property meant they "could not just simply up and leave this place*."* Despite being unhappy with the zoning decision and John feeling that their property was fixable, the couple decided to wait before they looked for a new property. Inherent in this was a desire to spend another summer in their Southshore property and also to be psychologically prepared for the move. Wendy also believed that they could convince somebody that their house and land was repairable. John stated,

> The plan was to take me out of here in a box, you know … I'd still be quite happy to remain here for the rest of my days [in the Southshore property]. Yeah … here we see a sunset every day and, you know, looking out … the other day and we said 'oh gee we've got this place just about right, we're so happy being here.' Our dreams were destroyed by being in the red-zone. Literally.

In this excerpt John describes why they felt loss when their house became red-zoned. However in their minds, and consistent with many of the CSs, was the idea that what they lost was not reclaimable anywhere else. This instilled very little desire to move. Eventually John and Wendy discovered a section in Northwood that they felt comfortable moving to. Despite this, the couple admit that they are not happy with the zoning outcome, or their new property. John and Wendy stated that their intention would be, if they were younger, to return to the exact same site of their

Southshore household. Considering that these sites won't be safe for rebuilding within the next 15 years, they believe that they may end up being "forced to live out our days in this new property"

By August, 2013, John and Wendy were yet to relocate. They were one of a number of households to receive an extension from CERA. The reasoning behind their extension was the time it had taken for building consents to be processed by the Christchurch City Council. John and Wendy had purchased a section in Northwood in 2012and submitted plans for consideration in March 2013. Despite having even lower levels of SWB in the second interview (still pre-move), the couple state that they are asking for another four month red-zone extension. The reason behind this being two-fold; for the future house to be fully completed before they move and to maximise the time spent in their Southshore property.

CS Household 2: Ruby

Ruby is a public servant, working for a government research institute. She had lived in her red-zoned property for nearly twenty years and the property is situated near the border of red and green TC3 zones. She is New Zealand-European, aged in her 60s and is the single occupant of her household.

Ruby has previously lived in eastern Christchurch, although had spent time house sitting in Rocking Horse Road. It was here she noticed a property that she liked on Estuary Road, on the north end of the Brighton Spit. She was attracted to the particular property because of the proximity to the beach, the estuary, the affordability of the house itself, as well as the section size (which allowed her to grow and develop a garden).

Her house was relatively undamaged from the earthquakes, despite the garage becoming unusable due to toxic mould from the liquefaction. Structurally, the house was intact and the ground has not subsided to the same extent as properties closer to the estuary. In fact, her property is approximately 400m from the estuary front and is the furthermost house from the water that is in the red-zone. Her property sits on the northern red-zone/TC3 border.

Ruby has had difficulty in accepting the process in which CERA came to the conclusion that her house is in the red-zone and has been committed to forcing CERA to release documents about the decision making process. She argued that Jan Kupec's explanation of why Southshore was red-zoned does not apply to her particular property. In her interview she stated,

> I'm not stupid with technical data so I went through it and I'm still trying to get explanation about how or why they drew the boundary where they did … because looking at all the data … to me the boundary should have been drawn a few houses back that way, or it should be up at the corner if you go the other way. But I think it should be that way, particularly if you look at Seaview Place and up further by Brighton School, up by the bridge, there seems to be some consistency. So here I am, trying to get the data and explanations out of CERA … because working for a science organisation I want decisions to be evidence based … I want to know.

As a result Ruby strongly resisted moving. She felt, despite no formal process to argue or overturn a red-zone decision, her location gave her the biggest chance out of any in Southshore to protest (being furthest from the estuary). Similar to John and Wendy, Ruby felt that what she had in her Southshore property was impossible to replicate anywhere else. She expressed a desire to stay in her Southshore environment as long as possible and had continued to maintain her garden "to make everything feel as though it's normal." Despite remaining committed to extracting information about the decision making process, Ruby was also realistic in that it was unlikely to lead to an overturned decision. She stated,

> By the same token I am looking for other places … I have to move because it's an act of parliament, there's no way they are going to overturn the whole decision. I've looked at zillions of places … but I always come away feeling really depressed … It always comes back to what I can do to keep this.

By the end of the project (September, 2013) Ruby had yet to relocate and was one of the last people to leave the red-zone itself. Whilst she was expecting to move out soon, she was still holding on to the hope that CERA would move the red-zone/TC3 boundary. She had not relocated in the short-

term, despite the toxic mould in her garage. Similar to other CSs, Ruby only begun to look for new property in 2013; 7 months after the red-zone decision.

Committed Stayers Characteristics

In some ways it could be argued that households/individuals in the CS group were simply resisting the red-zone decisions. However in both Ruby and Wendy and John's case, and synonymous with people in the CSs group, is a resistance to mobility itself. For CS households, earthquake damage and lack of amenities had little effect on their commitment to Southshore as a place. At the same time, they did not find the prospect of moving to an undamaged property outside of Southshore as attractive as other households in the sample.

CS households had typically lived in Southshore for a long time and exhibited higher levels of place attachment than other households (refer to Table 6). Households in this group were more likely to start looking for a new property at a later date than the rest of the sample and only once any red-zone extension applications had been exhausted. For the CSs that purchased property to move into before the red-zone deadline, they were likely to still choose to continue living in their Southshore property until the deadline passed. The group were often the last to exit the red-zone itself.

CSs exhibited very specific short-term and long-term residential relocation patterns, as evident in the two household's experiences above. For CSs there was little desire to spend time away from their property and they tended not to relocate before the zoning announcement. For the one household that stated they moved in this time (due to an unsafe house) it was to a campervan that was located on the existing property.

In regards to long-term residential relocation CSs were highly likely to move within Southshore itself, or to a similar environment. In this case they exhibit aspects of the Environment Re-Creators. However a key point of difference is that they either expressed a desire to return to their previous property in the future, or continued to fight the legitimacy of the red-zone decision, even after

relocating. For CSs there appears to be less concern about their future, or new property, but more focus on the government and insurance processes that led to the loss of their property.

The Environment Re-Creators (ERCs)

ERCs displayed residential relocation patterns that attempted to re-create some, or all, of the aspects of their Southshore property and community in their new location. A common aim was to take features of the Southshore environment with them to their new property (e.g. their house, or dune/garden vegetation), or to move to an environment that contained the same valued amenities as Southshore (e.g. a coastal view). Similar to the members of the CS group, these households placed high value on maintaining a standard of living similar to pre-earthquake levels and displayed mid-high levels of place attachment compared to the mean.

The following two households display characteristics typical of ERCs in Southshore. Both moved relatively close to the red-zone deadline, a result of looking at a number of properties prior to purchasing one they felt happy to live in. It is particularly interesting to note the varying extents to which the households incorporate aspects of 'Southshore living' in their new environments.

ERC Household 1: Joyce

Joyce is an employed nurse and moved into Southshore 17 years ago. She is New Zealand European and in her 60s. At the time of the interview she was the sole occupant of her house, although she often has a friend living with her for periods of time. She owned her red-zone property, with a mortgage.

Joyce moved into her Southshore property because of the proximity to friends and access to amenities that she valued. In this case it was the beach, where she still is an active member of the local surf lifesaving club. She had previously lived near water in every property that she had owned

and when moving to Southshore wanted to live somewhere she could see water from her lounge window. When asked about her purchasing her Southshore property she commented,

> It was ridiculous that I bought it, I couldn't afford it! I had a friend that lived across the road and another friend down the road. One of them was a surf-club person, so there were people in the area that I knew. But I was just at her place for dinner, or lunch one day and we saw this house was for sale. Although it needed work I loved it straight away.

After the earthquake Joyce's property suffered moderate damage. She had a number of issues with insurance and EQC assessments of the property. After the red zone decision she was told she would receive money only for a repair. After spending $120,000 in the past 10 years on improving the house it appeared that she would only be paid out $80,000 for the entire structure. Joyce joined with her neighbours and filed a lawsuit through a local claims dispute company (a form of 'class action'). After six months of negotiation Joyce's lawyer negotiated a pay-out that was closer to the rebuild value.

When searching for a new property Joyce had difficulty in finding something that was similar to what she previously had. In discussing looking for a new property she stated,

> I have had my finger in the pie for this apartment up the road a bit … I find out that there's 6 of the local surf club people have either got apartments there or had an apartment there … so that suits me down to the ground having the same people that I know there. It's very similar to what I have here but a bit smaller. The balconies are big enough to put a BBQ on and tables and chairs … so I can keep my outdoor furniture the same. Out the gate and you're on the beach…almost as close as I am here. You can't see the sea of course … but you can see the sand hills. So that's my compromise I guess … If I had the money I'd buy the view, but with what I have it's as close as I'm going to get.

However Joyce was unable to successfully purchase the property (the owners decided to go to auction, where a higher price was found). She later moved down the coastal stretch further into a similar, but smaller apartment. She later noted that she was reasonably happy with the property as it reminded her of her old house. Nevertheless she struggled as she couldn't wake up and see the

ocean as she used to and the property was too small for her belongings. During the first interview Joyce had relatively low levels of SWB, largely a result of insurance issues and a struggle to find a suitable property; a process that is common with individuals in the ERCs group.

ERC Household 2: Lesley

Lesley is an employed, New Zealand-European woman who had lived in her Southshore home for 24 years. Aged in her 50s, she grew up in Southshore and lives with her husband. In fact her former family home still stands behind her red-zone section. After reaching the age of 21 Lesley was gifted the front section of their property by her father, where she chose to build a house. She therefore has a strong connection to Southshore and the coastal environment in which her red-zone property sits.

In describing her connection to Southshore and her home environment Lesley stated,

> I have a strange feeling about this area. It's almost like that tangata whenua [Māori term meaning 'people of the land'] spiritual feeling about the place, I can't describe it really. I just need to be here. My father gave my sister and I a section each and my sister and I had a big discussion about who would live here … In the end we purchased it off her. Just to keep that open feeling and to put it into garden. I have a strong connection to the environment round here.

After the earthquake Lesley's house was largely undamaged, despite moderate lateral spreading of the ground underneath it. Although initially investigating possible routes of protest and contesting the red-zone decision Lesley accepted the reasoning behind such zoning. She stated in our first interview that despite being unsure of many of CERA's claims, she understood that mitigation against future liquefaction was problematic and expensive. However she expressed difficulty with insurance processes and believed they were severely out of pocket as a result of the government valuation.

Lesley initially hesitated in searching for new property. Whilst this was partially ground in a desire to stay in her property, it was largely a result of waiting for insurance and EQC to pay her out. In searching for a property they decided to move to a former relative's house, just down the road in Southshore. She stated,

> When we were in the orange zone we made lots of jokes about having to buy Aunty Margaret's house ha ha ha, it seemed quite funny at the time, but now it's not at all. The problem is, all the houses like this are completely overpriced, the few that are for sale. None of them have a backyard and I'm just passionate about gardening and plants and all that. We just couldn't live in a place without a big garden to keep us occupied … so we needed a house like this. It's two bedrooms and it's very old. Also, one of the bedrooms is off the living room, so that's going to be my little office sort of thing, computer room and one single bed in there- sort of similar to what I have here.

Despite being in a similar environment, with valued amenities (such as the garden) Lesley and her husband did not believe the house is similar enough to warrant long term living. She commented,

> Look … as nice as it is … we would have never done it without the earthquake, put it that way. We are kind of regarding it as an interim move. We would love to build a house on our TC3 section up the back of this house, but the delays are such that it's going to be a long, long time and maybe unaffordable, although we certainly hope not.

This excerpt highlights the fact that Lesley wishes to return to almost the exact same property in the future. Lesley and her husband were adapting the environment of their new property in an attempt to mirror their former Southshore property. This idea is synonymous with the ERCs group. In this case Lesley and her husband moved large parts of their garden to their relocation site. Furthermore they have hired tradesman to improve the standard of the house so it feels like "we are not moving into something much worse than what we had."

Lesley and her husband present one of the lower SWB scored post-move in the ERCs group (70, compared to ERC mean of 79.2). Lesley stated the moving process was traumatic and that she kept expecting to wake up from the nightmare.

Environment Re-Creators Characteristics

Joyce's experience highlights many of the difficulties that were experienced by those in the ERCs group. Often they were attempting to relocate to environments that contained very specific aspects of their previous one (for example, seeing the sunset at the same angle). On the other hand, if suitable property was available it was often too expensive to purchase. Joyce's experience is similar to many of the ERCs, in that she felt she had to settle for something similar, but overall it was a lower living standard when compared to pre-earthquake levels. This often led to difficult adjustment periods for households/individuals in this group.

It is for the ERCs that the new mobilities paradigm is perhaps most relevant. Households and individuals in this group were likely to discuss their home being not just a physical structure, but rather as a collection of experiences and people situated in a wider environment. In moving to Southshore this group had found and established an environment they felt comfortable in and therefore exhibited a strong desire to replicate what they previously had. In this context the ERCs appear to particularly value the natural environment that their house is situated in.

ERCs noted a lack of appropriate property to purchase in the Christchurch environment. As relocating to such an environment is costly ERCs were more likely to come from higher socio-economic groups. Property prices had increased dramatically since the earthquake and finding undamaged coastal property for prices similar to the EQC and insurance pay-out was difficult. The majority of this group relocated either further up the east coast (into New Brighton, Northshore and Waimairi Beach) or to other water environments, such as the wetlands in the north of Christchurch.

There appeared to be little consistency in the time that ERCs left the red-zone itself. On one hand, ERCs were willing to take more time to find a property they felt comfortable and happy to move into. However, on the other hand, if such a property came up quickly there appeared to be few qualms in purchasing it and leaving the red-zone earlier. Reconstructing a similar living environment

was not limited to natural amenities for this group. For ERCs there was also a particular value in both maintaining and recreating similar social connections in the relocation environment. These individuals/households expressed a desire to stay involved in similar social activities. These included outdoor sporting groups and access to a local bar or restaurant, similar to The Bach (a pre-earthquake Southshore bar). Interestingly, a number of ERCs purposely relocated near one another as to maintain the community feeling they experienced in Southshore.

ERCs exhibited a range of SWB scores, although a number presented lower than average scores post-move. This was largely due to disappointment in the living standards experienced in their new properties. However, ERCs expressed pre-move that they did not expect to achieve the same standard of living as what they had pre-earthquake (they did not believe an environment similar to Southshore existed in Christchurch).

The Resigned Acceptors (RAs)

At first glance the term 'resigned acceptor' appears to simply describe an attitude to the earthquake and red-zone situation. Indeed, it could be said that a number of households sense such an attitude at some point in the relocation process. However I have used the term to describe a mobility pattern that defines almost a third of the sample for this study.

RAs expressed difficulty in finding a property that they felt happy, or comfortable, moving into. Individuals and households in this group felt that the moving process was out of their control and therefore felt little choice on where to relocate to. Whilst a number of this group disagreed with either the red-zone decision, or the pay-out they received, they felt that there was little point in dwelling on processes that appeared unchangeable or inarguable. RAs also expressed a distinct negativity towards the property market and the availability of suitable housing. RAs highlighted that they were likely to move into something that they would not be satisfied with. For RAs residential

mobility was regarded as more of a temporary measure, perhaps as a necessary response to a difficult situation.

The following two households both exhibit aspects of lack of control that are reflected in their post-disaster mobility patterns. Whilst Mary's experience depicts a stronger connection to place than Julie's, it is still interesting to note how the perceived lack of control over the post-earthquake situation translates into mobility behaviours.

RA Household 1: Mary

Mary is an employed, New Zealand European women and aged in her 50s. She had lived in her Southshore red-zone property for 13 years. Mary's red-zone property opened out onto the estuary and was one of the closest properties in Southshore to the estuary edge.

Mary chose to live in her property in Southshore because of the natural environment. In explaining her decision to move there she stated,

> I moved here purely for the location. I have a big lawn going straight down to the estuary. I have got all the evening sun all the way through to the sunset. I can wander, I can jump over my wall and wander down the estuary and up the beach … and if the tide is in I can chuck a wee kayak over the wall if I so choose … and even just sitting down there and watching the fish in the water when the tide is in and watching the birds. It's just amazing how all the buildings drop away when you're on the estuary, so it's a feeling of space.

Mary's property suffered minimal structural damage as a result of the earthquakes. However there was considerable lateral spreading in the front of the property, where land had fallen into the estuary. As a result Mary did not residentially relocate after any of the earthquakes and still felt little need or desire to search for a new property when hers felt liveable.

Despite feeling as though she had grounds to contest/protest both the red-zone decision and EQC/insurance claims on her house, Mary felt that raising concerns would simply prolong a difficult

and stressful process. She stated that those who sought to publicise their case, or sought to involve the legal system were just wasting funds on "a process that is so much bigger and more complicated than just one house, or one case." In the first interview Mary recited that she had spoken to a local MP and CERA representative weeks earlier about the possibility of subdividing her land. She felt that the back section, which part of the house sat on, would be suitable to build a house on, if land was in short supply. This was met with a largely negative response from the CERA representative and Mary felt this typified interaction with such an organisation. She later stated "well if they won't even be receptive to me going in and trying to help somebody in the long run…I won't have any luck if I'm going in with a complaint."

During the second interview Mary stated that she had purchased a property in a part of town she did not know and had little attachment to. The redeeming feature, in her eyes, was that it had views of the city and created a feeling of space. Nevertheless she commented,

> I've bought a more expensive, too-big property simply because of the pressure in the market … well maybe not totally that … but certainly the pressure in the middle of the market is just huge and I'm lucky because I could afford to extend myself a bit. I just had to do something. So I had to buy this crazy house that at the moment I kind of feel like I might be selling in six months time. It's just something I had to do though. I told you that estate agents were trying to get me to buy houses without looking at them … it's just the situation it is I guess, lots of pressure. There's nothing I can do to change that, I just have to find a way out and deal with it in the future.

In this excerpt Mary describes an attitude that is synonymous with RAs; the idea that their situation is controlled by organisations and processes bigger than themselves. In a way this defines their post-disaster residential mobility. Mary did not seek to re-create past environments, although this is not to say they do not exhibit strong levels of place attachment. Mary recorded one of the highest levels of place attachment within the sample. However it appears that an attitude of resignation

supersedes such attachment (thus the label and perhaps explains the distinction between RAs and CSs).

RA Household 2: Julie

Julie (female, aged in her 40s) had lived in her Southshore red-zoned property for nearly 6 years at the time of the September 2010 earthquake. She is unable to work due to health reasons and lived in the property with her teenage children. Despite having been in the Southshore neighbourhood for a short time, Julie exhibited strong levels of place attachment and owned her property with a mortgage.

Similar to other households in the study, Julie described moving to her Southshore property because of the natural environment. She stated,

> It's very nice here and quite wild, quite untamed, not really … structured. You know, like the environment wasn't highly structured, there wasn't structured gardens and so it was quite, had a nice feel. It was a lot like, sort, of, Piha, you know, that wildness. Just the greenery and the grasses and things like that. I liked it here, it's not like a subdivision or anything like that.

Julie was particularly surprised to hear that her land was red-zone, especially considering that the house has very little damage to it. Her red-zone property was also located a reasonable distance from the estuary edge, with dunes and vegetation in between. However her perception of the red-zone decision exemplifies RA behaviour in many ways. She commented,

> It'd be a waste of energy to get involved in putting too much energy in [to responding to the zoning decision]. I suppose … it was kind of a shock I had to move and I would have rather not have had to do that. There's no luck in it. It's just … get out of your home … you know, decide whether you're going to stick around for your adult family or whatever you're going to do. In fact I don't think you can think about it too much … you just have to do it and deal with the repercussions later.

As is evident in this excerpt, Julie felt that the complexities of being labelled in the red-zone made it difficult to understand the potential effects of relocating in different areas. She felt that there were too many processes involved in the post-earthquake environment to be able to make an informed decision. She later stated that she could not understand how anyone in the red-zone could juggle EQC and insurance pay-outs, the high pressure property market, continuing aftershocks and the forcible acquisition of their land while making a decision where to move to. She also commented, as the majority of RAs did, that there was little point contesting anything "as an individual in a much bigger picture"

In her second interview (April 2013) Julie stated that she was yet to relocate. In fact she was hoping to sign to an apartment that afternoon. This appeared to be not from a lack of trying (she had attempted to purchase two properties previously, before being out-bid). Julie described that she was willing to take whatever property she could get to solve the immediate problem; that being to get out of the red-zone before the deadline. In regards to that apartment she stated,

> One of my friends asked me on Wednesday 'so what are you doing?' and I said 'actually I don't know'. And she said 'oh would you be interested in a one-bedroom place when I'm going to Italy' and I said 'yep that's the only offer I've had'. That's kind of how I've been rolling with it.

Julie believed that this property would only be used a short-term home. In Julie's case she did not place value upon the house or environment she was moving into, but rather the emphasis was placed upon adapting to a perceived difficult situation. As with many in this group Julie presented low levels of SWB pre-move (58, compared to overall mean of 60.5) and felt little control over the moving situation. Without prompting she acknowledged this however and stated that she expected life to improve once she moved to an environment she felt comfortable in.

By the end of this study Julie had relocated to Auckland with one of her children and expected to remain there for the foreseeable future.

Resigned Acceptors Characteristics

Both Mary and Julie noted that they expected to relocate again in the near future. Whilst this is consistent with post-disaster movers in international literature, it also appears to be behaviour consistent with RAs in this context. A number of households in this group stated the intention to move within the next five years.

For RAs, relocation was about doing what they could to 'wait out' the difficult post-earthquake situation, rather than the property and environment they were moving into. RAs typically noted that the relocation property did not necessarily have to have 'pull' factors. Rather it existed as somewhere to move in the interim until the post-earthquake environment settled to allow them to make "an actual choice".

In essence the group adopted the attitude that the post-quake situation was out of their control. As a result and building on the previously described relationship between SWB and perception of control, RAs typically presented low levels of SWB. Households and individuals in this group experienced relatively constant levels of SWB pre and post move. This means that relocation out of the red-zone did not significantly increase or decrease levels of SWB. Inclusion in this group also appears to signal relatively low levels of place attachment. RAs tended to be people that had either only recently moved into Southshore, or considered home to be only the house structure itself (for example, CSs tended to understand 'home' as the wider natural environment). In some cases this lack of connection to place resulted in a form of apathy to the forced relocation situation.

The Opportunistic Movers (OMs)

OMs are people seeking to grasp or take advantage of an opportunity through residential relocation. There is often an element of experimentation, risk or even pre-earthquake planning, in their post-disaster mobility patterns. Whereas ERCs seek to reconstruct the environment that they lost, OMs looked to relocate relative to an opportunity, or viewed the earthquake as an opportunity to

implement pre-earthquake proposals. OMs typically viewed being in the red-zone as more of a positive outcome than households in other groups.

The two households whose experiences are presented below represent the two forms of OMs. Katrina's earthquake experience, although tied in with further personal difficulties, illustrates how some movers relocate in relation to opportunities that arise as a result of the natural disaster. Whilst Tony and Jane's experience highlights how some OMs future plans were brought forward by such events.

OM Household 1: Katrina

Katrina was only a recent mover into Southshore, having lived there for 2 years before the September 2010 earthquake. She is employed by a tertiary education institute, is aged in her 40s and is New Zealand European, although she originates from South Africa. Katrina lived at the property with one other resident and owned the property free of a mortgage.

Contrary to many of the participants of the study Katrina described little connection to the natural environment surrounding her property. When asked why she chose to live there she responded,

> The boating mainly … my former husband was a marine engineer. He thought he would like boating … oh and the kayaking, being on the water. The swimming pool too … so the house for him was a mark of approval and a big achievement … so that was basically the move. So I was … I wouldn't say I was passive exactly … it was nice for me too, but I grew up with a swimming pool and warm weather… he's a Pom and I'm South African so to me it wasn't as amazing as it might have been … but yeah, that's why we came.

As well describing a form of stoicism about her Southshore property, Katrina described a lack of connection to the community. She used to attend functions at the local bar, but beyond that believed that she was not a part of the community itself.

Katrina's property was extensively damaged as a result of the earthquakes. The bottom floor became unliveable due to mould and structural issues, whilst the swimming pool was destroyed. As her property extended to the estuary frontage, the majority of her land experienced severe lateral spreading. As a result Katrina was one of the more mobile short-term movers and spent time in Otago after the February 2011 quake.

Despite saying that she felt comfortable in her home, Katrina displayed little resistance to moving. She was one of the first households in the sample to secure a new property, purchasing vacant land near the central city. In explaining her decision Katrina stated,

> I didn't want to stay in the area. The thought of being so isolated is scary. It was a quick process, literally I found it, we did the testing … I had to go to India for work and the day before I left I made the offer, they didn't like it. I moved it up twice and then said I had to fly now … and then they accepted it. I saw the land and knew it was what I wanted … TC2 and close to work ... it's not flash but its Phillipstown … and I can see property values increasing massively in the area, which is why I jumped at it. So I'm building … that is something I never, ever thought I would do, but if I want to get what I want out of the situation then I have to.

Katrina's experience typifies the OM that responded to opportunities that arose as a result of the earthquake. She stated earlier that she had not planned on moving before the earthquake. Whilst the move was intertwined with other personal circumstances, Katrina expressed the belief that the Southshore property would have probably been her home until retirement. However being red-zoned presented the opportunity to move closer to work, on land that Katrina foresaw to increase in value in the future. Interestingly she previously noted that the potential for property values to increase in Southshore was a significant reason in purchasing the pre-quake property. In this instance the future opportunity relates to values that the individual held when making previous residential movements. This was not consistent within the OMs group. However, future financial gain appears to be the main intention for this form of OM.

Despite going through unrelated traumatic personal circumstances (removed for privacy reasons) Katrina exhibited relatively high scores of SWB pre and post move. This was despite having initial difficulties with the insurance company. Katrina explored the impact of these issues, stating,

> The insurance company, between September and the next earthquake, added in that our section is 150 square meters in size, which is totally less than what the house is. Our house is 200 and something square metres in size. They must have tried to clean up the business and add that in, but we never checked … The lawyer wanted to fight and say they shouldn't have put such a small area, when they had access to the whole area … and couldn't claim it was underinsured … because apparently that happened to a number of people. But in all honesty we felt we got a fair value for everything … I would have felt we shouldn't be asking for more money when we got what we thought it was worth.

Katrina highlights in this excerpt the belief that they had received enough compensation and were not aiming to seek more through the legal system. Of those who had this option available to them, this is a particularly rare viewpoint. However aspects of it are found both within Katrina's experience and within others in the OMs group. In this case Katrina seems content with her compensation as it allows her to purchase the property she desires in Phillipstown. Because she is 'forward focused' perceived injustices and place attachment to her previous property are seen as less negative phenomenon.

OM Household 2: Tony and Jane

Tony and Jane were long-time residents of Southshore, having purchased their red-zone property 29 years before the September 2010 earthquake. They are now both retired, in their 70s and owned their home mortgage free.

In describing why they moved to Southshore Tony explained,

> I think everywhere we lived recently was fairly close to the sea. So that was important when we chose Southshore. At the time there was no road … there was just a dirt track and the

> only people who lived down here were the Englishmen, that's why they called it Pommy Point … it was close to the city but it was isolated and it had good air … good clean air.

Tony and Jane had not planned on moving to such an environment, but Jane had noticed the affordable land and natural environment when working as a district nurse. The earthquakes of 2010 and 2011 caused little damage in their home, despite it being close to the estuary edge. The house was structurally sound and the land in front of their property suffered little slipping or lateral spreading. The red-zone decision was therefore viewed by Tony and Jane as a surprise, but not necessarily as a negative decision. Tony states,

> It was a surprise, but maybe deep down we sort of suspected … They had bored down in Heron Street … they bored down 39m and didn't find anything solid. That was as far as the bore would go … so maybe we were naive in thinking we could go green. But you know … we always knew we would have to downsize eventually. Jane … well Jane can't even get down to the letterbox now … so it's a big job for me to look after the house and the garden … too big of a job actually. So we're moving into a retirement village. There's a nice new one being built in Prestons road. It's a very nice place. It's brand new. It's got everything that opens and shuts, far better than this one. We were going to move to something like that eventually, now just seems the time to do it.

In this regard Tony and Jane are the type of OM that relocates relative to pre-earthquake plans. Later in the interview Tony elaborated further on this idea, explaining that they felt the earthquake was in some ways a positive event for both of them. They had received a pay-out well in excess of what they purchased the land for. Despite the insurance company only reimbursing their house for a small 'repair' value, the land pay-out covered the costs of their new property. Whilst Tony admitted that they may not have moved for another 2-3 years, he felt that the red-zone offer saved them the trouble and fees associated with selling their house. Tony felt as though the earthquake had "forced [them] to play our cards early" but later stated that it's probably a "blessing in disguise in a way".

During the second interview Tony touched upon the concept of opportunistic mobility in the post-quake environment,

> We knew what we wanted to move to anyway, so that made us a bit more settled about it. I don't know if you know about this, Simon, but there's actually quite a few people in the same boat as us … elderly people you know? Those houses in Southshore are too big to care for when you're our age … so I know a lot of the older people are just shifting forward their lives five years and taking advantage of the government pay-out … if you want to start a business, open a retirement village! So yeah … people are having to move, but it's not the worst outcome for everybody. I do feel sorry for the young families though.

For Tony and Jane the opportunity to implement the pre-determined plan of moving into a retirement village was facilitated through government pay-out of their land. Similar to many within the OMs group, previous plans had not been acted upon because of the lack of fluid capital. The government and insurance pay-out, even if it was smaller than current market value, therefore acted as the enabler for OMs. In cases where capital was not needed to enable such a move, households were often required to bring forward future relocation plans. This did not, however, result in negative experiences within the OM group. Rather, OMs tended to express that they fortunate to have relocation plans or ideas that they could act upon.

Whilst Tony and Jane experienced an adjustment period, their levels of SWB increased post-relocation. As previously stated, this is largely consistent within the OMs group. Tony and Jane believed that, while it took them a while to adjust to the different environment, they already had noticed (within three weeks of moving) the advantages of living in such a property. Whilst Jane was still struggling with the lack of an ocean view, she stated that she expected this to change as she met some of her neighbours. This form of positivity about the new property was commonly found in OMs. I believe that there is a direct link between this positivity and higher levels of SWB in OM households.

Opportunistic Movers Characteristics

For OMs the relative accessibility of capital allowed them to take opportunities that may have been more difficult before the earthquakes. This often involved moving into a smaller property, moving

closer to elderly parents, moving into a property with more value potential, or even upsizing if family size was increasing. OMs typically operated in either of two ways. Firstly, there were a small group of OMs who looked to capitalise on opportunities that were created as a result of the earthquakes. This normally involved purchasing newly zoned residential land close to the city, or purchasing TC3 land (that had relatively low value now, but would increase once repaired). Secondly, and more commonly, there were a group of OMs that acted upon pre-earthquake plans. This often involved plans that were designated for the future, but the earthquake enabled them to free up capital and complete the move sooner.

A number of OMs come from higher income households, suggesting that financial resources allow for this type of movement or behaviour to occur. However a number come from lower income households, suggesting that the level of capital may only dictate the opportunity that is selected (for example the cost of downsizing a house would be smaller and therefore available to lower income earners).

For OMs the prospect of experimentation, change and 'betterment' is generally more important than recreating the environment they had in Southshore. This is not to say, however, that levels of place attachment were low in this group. Rather that they felt they were not suited to their home environment any longer. A number of OMs relocated north along the coastal stretch described earlier. In this regard some of the group do exhibit aspects of the ERCs, in the fact that they attempt to maintain an aspect of their previous environment. However a key point of difference is that OMs expressed an explicit desire to change one or more aspects of their home environment when relocating.

Interestingly OMs experienced higher levels of SWB pre and post-move than the mean (see Table 6) and appear to adapt more quickly to their new environment. I hypothesise that OMs are likely to be more content with potential injustice, discrimination or financial loss, as long as they have the

resources and capacity to relocate relative to their valued opportunity. For ERCs, for example, they may have the financial capacity to purchase a similar property, but will also turn attention to resources/environments that are lost.

OMs typically viewed the red-zone decision as an opportunity in itself and were more likely to relocate sooner outside of the red-zone. One could expect that such a difficult decision may lead to increased stress and adjustment periods; however the OMs did not appear to compare their new living standards to what they had in Southshore. It appears as though these movers had the expectation that such a move could result in difficult adjustment periods. Therefore, if faced with difficulty in their new location they were more likely to display an optimistic outlook about the future.

Conclusions and Relevance to Other Post-Disaster Movers

The extent to which these types of movers link with existing literature on post-disaster mobility varies. Indeed, the structure and agency debate seems particularly relevant. Tan (2011) believes that structural arguments consist of objective and external constraints on human beings, their behaviour and their interpretation of the environment around them. RAs in particular appear to acknowledge the influence of higher social structures in affecting their ability to relocate. CSs tended to highlight that these structures (in the form of government intervention) were the cause of relocation itself. OMs, on the other hand, tended to note some form of an agency centric approach in their relocation process. ERCs, in particular, expressed a recognition that they could actively decide on the courses of mobility they wanted to pursue (as argued by the agency approach to social science). However they still described the role of higher social structures and processes in shaping the timing and availability of the move itself. This suggests an aspect of structuration theory- where the coming together of structural domination and human agency results in specific mobility patterns.

In relation to previous post-disaster mobility studies, aspects of the types described in this chapter can be found in the literature. As previously stated, there were only a small number of participants who relocated before the zoning announcement (these households were largely in the RA and OM groups). Despite Hugo (1996) stating that residential relocation, on a temporary basis, is one of the key survival strategies adopted in the wake of a disaster, mobility as a coping mechanism was not a significant behaviour in this study. It is important to note that a small number of those who did move did so to escape further aftershocks; however the majority of the sample (and especially CSs) showed extreme resistance to short-term relocation.

In regards to long-term relocation both opportunistic mobility and re-creation of environments (termed the OMs and ERCs in this typology) appear to be consistent themes. The idea that populations move relative to opportunity has been highlighted in previous post-disaster literature (Levine, Esnard & Sapat, 2007; Davis, 1978; Myers, Slack & Singelmann, 2008). The inclusion of OMs into the provisional typology would therefore be applicable to other contexts. Relatively unique to the Canterbury context are OMs who implement previously proposed relocation plans. This is resultant of the context itself, in that homeowners are reimbursed for their land and property, which enables some form of choice in relocating. This would not have been possible after Hurricane Katrina, for example, where relocatees were forcibly removed from their uninsured properties (Peek, 2012). On the other hand, re-creation of environments (as previously documented by Dacy & Kunreuther, 1969; Bolin, 1993; Drabek & Key, 1984; Logan, Alba & Zhang, 2002) is potentially more difficult in the Canterbury context. Whereas previous studies (in particular Mileti & Passerini, 1996) note that post-disaster movers try to replicate the social aspect of their community, ERCs in this context are more focused on the environment around the property itself. As Southshore ERCs value the coastal environment, there were often difficulties in replicating aspects of the environment affordably.

Aspects of the CSs group are evident in other contexts, but perhaps not to the extent as highlighted in this study. The Canterbury earthquakes provides a unique context in that relocatees are moving from relatively undamaged homes and generally have access to financial capital other movers may not have. The democratic political system (ignoring arguments of erosion of democracy after disaster) also creates an environment that fosters resistance to such government intervention. Whilst other post-disaster movers generally exhibit resistance to relocation (for example, Raju, 2013), the extreme opposition to the decision (as well as the commitment to relocate back to such an environment) is not found in the literature. It is interesting to note that in the context most similar to Canterbury, the Victorian bush fires in Australia, there were few extremely resistant movers (Nolan, 2010). The data suggests that, in the Canterbury context, the level of attachment to the natural environment heavily influences this resistance to relocation.

Such a typology, therefore, is created with caution. Fitting such mobility behaviours into individual groups is an attempt to simplify a complex set of circumstances. Taking such an approach also runs the risk of ignoring the social, political and economic conditions that lead to certain behaviours. The provisional typology, nevertheless, builds upon themes that have constantly emerged from post-disaster literature. Whilst aspects of the CS and OM groups emerge from specific Christchurch processes (perhaps even specific to Southshore), such behaviours are evident in relocations after previous disasters.

Perhaps the most important factor to note in regards to the differences between the Canterbury context and others is the access to fluid capital. The reimbursement process has received considerable criticism, as previously described. Nevertheless the ‘freeing up’ of such capital enables some form of agency centric movement. A number of households, especially those in the RA group, highlighted the domination of social structures and political processes (such as the housing market). However, households in this group noted the desire and ability to move in the near future, a process that is often not possible in other disaster contexts. Therefore such a typology, with future

development, is applicable to other post-disaster environments. Whilst individual processes and behaviours may differ, the over-arching intentions and mobility patterns described within this chapter build upon past research findings.

Chapter 7: Conclusions

The findings of this study highlight the varying relationships between organisations, processes, disaster experiences and post-disaster mobility. No two earthquake and forced relocation experiences are the same. The extent to which organisations, processes and disaster experience affect post-disaster mobility is varied, and relocatees present a range of behaviours. Despite this, a number of core themes run through the experiences of red-zoned households and some of these link into ideas previously discussed in the post-disaster literature.

As both the international literature and the findings from this study illustrate, the relocation and adjustment periods are often problematic. Relocatees face a number of challenges, often in addition to dealing with expected post-disaster difficulties and loss. In both this study and Fernando's (2010) study of relocatees in Sri Lanka, participants were forced to relocate despite experiencing feelings of political injustice. Movers in post disaster environments also have to contend with the limited availability of housing, accessing resources required to purchase a new property, accessibility to valued social connections and feelings of loss or place attachment. Whilst this study suggests that moving out of the red-zone improves both the disaster experience and levels of SWB, the barriers of such a move are often difficult to overcome. This suggests the need for improved systems and processes in future events.

This chapter is designed to consider and evaluate findings from both the Christchurch context and international literature. The following chapter is organised as follows. Firstly, I will summarise three key findings and consider these in the light of the international post-disaster literature. Building on this I wish to briefly evaluate the typology discussed in Chapter 6 in relation to both its relationship with previous post-disaster literature, as well its potential contribution to future mobility studies.

Secondly, in the light of these findings, the chapter discusses three over-arching recommendations and, in response to the findings of this study, a number of more localised, context specific proposals.

These three recommendations are; the need for a defining of the role of governmental, third-sector (voluntary) and private organisations in providing pre, during and post relocation support, the need for resources that enable the continuation of community and resilience practices, and the encouragement of intra-urban and local residential mobility after disasters. This is followed by a discussion of future areas of research and the chapter concludes with a short personal remark.

Main Findings

Previous studies have suggested that the Canterbury earthquake sequence has resulted in one of the largest documented population movements, both temporary and permanent, in New Zealand's history. As Nissen and Potter (2011) noted, nearly 15% (55,000) of Christchurch's normal population left the city in the days following the February 2011 quake. Postal redirection data also indicated a high degree of post-event movement inside the city, with approximately 20,000 residents redirecting mail to an alternative Christchurch address, compared with the approximately 5,000 who redirected mail to an address outside of Christchurch (Price, 2011). Post-disaster mobilities, in the Christchurch context, appear to consist of a highly mobile population in the short term, yet very little residential relocation outside of the city itself. This study into the residential mobility of red-zone residents in Southshore highlights three key findings that both reinforce and contradict these, and previous international research, conclusions.

Resistance to Short-Term Mobility

Firstly, the sample for this study exhibited low rates of short-term residential relocation, defined in this thesis as temporary relocation before the zoning announcement. 13 of the 31 households involved with the study relocated in the period between the September 2010 earthquake and the May 2012 zoning announcement. The data suggests a relative lack of damage to housing from the quakes, along with relative isolation from the central city recovery efforts, and strong attachment to place all contributed to participants not moving from their Southshore homes in the immediate

aftermath of the quakes. The fact that a small number of participants relocated within Southshore itself reinforces the apparent desire to not move unless absolutely necessary. For those that did relocate in the short term, lack of amenities in Southshore (such as water, sewage and power) appears to have been the major 'push' from the earthquake environment. This was often entwined with a desire to escape from the constant aftershocks, but was usually countered with the 'pull' of social connections in another location.

When compared with the statistics of Christchurch as a whole, it would have been expected that participants demonstrated higher rates of short-term residential relocation. Along with Nissen and Potter's (2011) findings, Gray & Mueller's (2012) investigation into post-disaster movers in Bangladesh stated that affected populations often relocate temporarily, and move back into their housing once recovery begins. This idea is also highlighted by Shipton (1990), who argued that 'short-term distress migration' is a common behaviour in disaster affected populations.

The context itself and extent of damage in Southshore appear to have driven this resistance to short-term movement. Contrary to Gray & Mueller's (2012) study, the respondents in this research were largely from higher socio-economic groups. This meant that they generally lived in sturdier, higher cost housing (that was less likely to damage in a natural event) and if damaged occurred, they had the financial means to fix it (or at the very least make it liveable). This relationship between damage and short-term movement is reinforced by Gray et al. (2009), who argued that those who were living in areas that were heavily damaged are over three times more likely to move away from the disaster environment. In many ways this may explain the difference between the findings of this study and the findings of Nissen and Potter (2011). Southshore, whilst later being labelled red-zone, suffered little damage in the earthquakes themselves, compared to other eastern suburbs. After the September and February events movers form these other eastern and city centre suburbs may have had to move due to lack of services and building damage, whereas this was not required in Southshore.

I cannot find any instances of where previous literature explores the role of place attachment in influencing post-disaster movement. The high levels of place attachment exhibited by respondents in this study and the resistance to short-term movement is not a coincidence. I believe that movers with high levels of place attachment are less likely to relocate and are more willing to put up with higher levels of disturbance or disruption, in order to maintain their connection to the environment (social or physical) that they value. This may further explain the difference in short-term mobility findings between this study and Nissen and Potter's (2011) results.

Differing Values Placed Upon Purchasing Pre and Post Quake Property

Secondly, this study highlighted that the decision making process involved in purchasing property changed between the pre and post quake environments. Whilst proximity to valued amenities remained important in both contexts, concepts of safety and affordability were valued more highly post-quake. Proximity to friends and family were also valued more highly in the post-quake environment, but were not as important as one might expect. Patterns of residential relocation (or long-term mobility) show distinct clustering around the eastern coast, northern suburbs and to a smaller extent, the inner suburbs. This patterning is difficult to analyse with a relatively small sample (31 households), but movements into the three areas appear to reflect different valuations of the attributes/resources offered by each place.

Such movements are related to the availability of land in Christchurch. Yet it is interesting to note that only one household relocated in the west/south-west of Christchurch (which is expected to be the largest area of growth post-quake). The results suggest that the physical environment of this part of Christchurch does not appear desirable for people who live in Southshore (who generally moved to such a suburb because of the natural water environment). This is consistent with the findings of Mileti and Passerini (1996) who, in analysing relocation data of earthquake related

movers in the 1980's, stated that resettlers attempt to find environments that conform to the 'organic' pattern of the settlement that is being abandoned.

The variance in post-disaster relocation behaviours seen in this study is addressed, although not specifically, in previous post-disaster research. Previous studies have highlighted how, after extreme events, movers exhibited specific behaviours. For example, in the wake of Hurricanes Katrina and Rita, Myers, Slack & Singelmann (2008) highlight that the majority of movers tended to take the opportunity to locate near family and friends. After the Three Mile Island nuclear incident in the United States, Goldhaber et al. (1983) stated that those who moved exhibited a desire to move 'out of sight' of the nuclear plant. Meanwhile Fothergill & Peek (2012) highlighted that forced relocatees had no decision where to move to after Hurricane Katrina, however relocatees attempted to recreate aspects of their origin environment in a new place.

However I am unable to find evidence of research that discusses the range of behaviours exhibited by post-disaster movers after one disaster. In a way this highlights the effect of context on post-disaster mobility. Literature that emerged from Hurricane Katrina illustrated that some post-disaster movers did not have a choice in regards to their relocation patterns after disaster. Other studies, such as Fussell (2012), argue that mobility patterns are affected by personal variables, such as access to financial resources. Lack of available finance, for example, would mean that disaster movers could either not move, or only move to low-cost affordable housing. The Christchurch context, however, presents an environment where insurance and government reimbursements, combined with a relatively high socio-economic population, enables movers to have a 'choice' where to move. This access to fluid capital, combined with the availability of property, meant that affected populations were able to place values on particular actions, environments, or behaviours. The lack of similar contexts (in regards to government pay-outs for land) and the lack of studies that highlight such a range of behaviours suggest that context plays a significant role in determining post-disaster mobility.

The Effects of Moving out of the Red-Zone

Thirdly, and lastly, the research highlighted how movement out of the red-zone altered both perception of the earthquake and levels of SWB. For the most part participants experienced difficulties in residentially relocating as a result of the red-zone decision. Every household in the study indicated some form of disagreement or disappointment with the zoning outcome. Respondents discussed the impact of an increasingly difficult property market, availability of finances, and attachment to place as adding to the complexity of relocating in such a context. The interactions with government and private organisations also had the ability to affect levels of SWB, and perceived lack of control over the moving situation was associated with lower levels of SWB. Surprisingly, the data appears to reinforce CERA's reasoning behind enforcing a red-zone deadline. SWB levels generally increased once relocation out of the red-zone had occurred. Furthermore, most respondents reported positive experiences in settling into their new home/environment, and settlement/adjustment periods appear to be short and relatively unproblematic

The positivity associated with settling into a new environment appear to contradict previous findings. Scudder (2005), in describing a stress and settlement process when relocating, argued that forced relocatees experience a drop in health, well-being and living standards when relocating in a new environment. Scudder states that there are physiological, psychological and social-cultural dimensions of stress that resettlers encounter and have to adapt to. Cernea (2000) also suggests that forced relocatees encounter such difficulties. He states that, unless mitigated, relocatees can encounter feelings of marginalisation, homelessness and social disarticulation, amongst others. Relocation can, therefore, produce additional social stress for disaster victims. Despite this, there are a small number of studies that suggest relocatees are able to cope reasonably well, with little, or no, adverse effects. Summarising this, Riad and Norris (1996) stated relocatees "tended to redefine the meaning of material possessions, immerse themselves in recovery activities, and develop new understandings of what is important in life" (pg. 178). It has also been claimed that, despite the loss

of social resources, the ability to 'escape' disaster affected areas means that relocated populations often experience a faster recovery period (Najarian et al., 2001).

In many ways the last claim, that the ability to escape the disaster area improves recovery, is particularly applicable to this study. The increase in SWB post-move can largely be attributed to the gradual loss of community and social resources in Southshore. To respondents, the loss of these resources made Southshore seem an unattractive environment to continue living in. Even those committed to staying in the local environment reported higher levels of SWB once relocating. The data suggests that holding on to something valued, but knowing it would be lost, negatively affected the disaster experience. For respondents, the combined loss of place and social resources was only magnified by spending longer time in the red-zone.

Such apparent adaptability to relocation illustrates how contextual factors influence disaster experience. The reimbursement system used in the Canterbury earthquakes allowed movers to recreate or move to environments they particularly valued. In some cases (especially with the 'coastal movers') this enabled red-zoners to maintain valued social connections. Feelings of loss, whilst evident, were therefore minimised. Stage Two of Scudder's adjustment process (2005) is perhaps less time-consuming because, in the Christchurch context, less adjustment has to occur. In comparison, the findings of Fernando (2010) highlight that the majority of relocatees after the Boxing Day tsunami in 2004 moved to poorer housing conditions – thus increasing the length of Stage Two in Scudder's stress and settlement process. As discussed later in this chapter, further study is required to see if red-zone residents experience delayed difficulties in adjusting to their new environments.

Conceptualising a 'Post-Disaster Movers Typology'

As a result this study proposed a typology of movers in the post-disaster environment. The majority of participants in this study exhibited behaviours that associated them with one of four mutually

exclusive groups. The 'Committed Stayers', 'Environment Re-Creators', 'Resigned Acceptors' and the 'Opportunistic Movers' all exhibited specific behaviours and relocation patterns in the Christchurch environment. CSs and ERCs were focused more on the origin environment, and potential resources that may be lost through relocating. Households/individuals in these groups tended to exhibit high levels of place attachment, and attempted to reconstruct or retain an environment through mobility practices. These groups generally reported poor disaster and relocation experiences as it proved difficult to preserve (or re-create) valued aspects of the Southshore environment in the post-disaster context. RAs tended to exhibit a form of apathy to the post-earthquake environment, and this was reflected in their mobility behaviour. Households/individuals in this group tended to be less concerned about the relocation property, and held the opinion that they could make more informed decisions about relocation once disaster recovery had occurred. This group is most likely to move again in the near future. Lastly OMs displayed mobility patterns that were either pre-planned before the earthquake, or designed to take advantage of opportunities that arose from the earthquake itself. Members of this group were less attached to the Southshore environment and also scored the highest SWB levels post-relocation.

The idea of an opportunistic mover is not new to disaster literature, although this study has introduced specific behaviours that are not usually recorded. Previous studies found people move after disaster relative to opportunity (for example see Tse, 2011), but there is little evidence of relocatees implementing pre-disaster plans in their post-disaster mobility. In many ways movers after the Christchurch earthquake displayed unique mobility behaviours. This appears to argue that context plays a role determining mobility patterns. Indeed, it is difficult to compare the plight of forced relocatees in different contexts. Whilst Fernando (2010) presents a captivating exploration of forced relocatees experiences in Sri Lanka, the sample for this study are from a higher socio-economic group, and arguably have more freedom in choosing the site of relocation. Similarly, such exclusion zones enforced in Indian fishing villages, as described by Raju (2013) affected a population

that were much more reliant on the local environment for their livelihood, than those living in Southshore. As a result the proposed typology incorporates aspects of these studies, but ultimately describes a context that is distinctive in many respects. Despite this, the experiences noted both in this study and the international literature highlight the need for support for post-disaster movers. In a society that relies on its connections to people, places and objects, it is important to ensure that such vulnerable populations do not lose these resources as a result of government intervention. Therefore, the following section takes a step back and explores three over-arching recommendations that can be made from the analysis of this study and other post-disaster literature.

Defining the Role of Organisations in Providing Relocation Support

Post-disaster environments are difficult and challenging for all involved. Whilst this study highlights some of the issues experienced by forced relocatees, the roles of government, private enterprises, and voluntary/charitable organisations are often difficult too. Often a collusion of services and resources occurs, and many organisations may in fact be replicating work of other groups (da Silva, 2010). In some cases organisations operate to serve those who 'fell through the cracks'; disaster populations that did not receive adequate care through mainstream disaster recovery services (Muggah, 2008). To an extent this occurred in the Christchurch context, with groups such as CANcern and WeCAN emerging to service those who felt ignored or marginalised by government action.

A number of respondents in this study noted the lack of support available to those in the red-zone. 87% of respondents discussed their belief that some aspect of the 'forgotten east' phenomena was present in their post-disaster experience. This is to say that they felt the government was prioritising recovery and rebuild efforts in the west and central business district areas of the city, instead of the more severely damaged residential eastern suburbs. Most households in the study expressed a

desire for increased support in some aspect of the relocation. Whilst the majority commented on the need for some form of support service before the move itself (to help them understand their options, and overcome late entry into the post-earthquake property market), some noted that they wanted support for the move itself, whilst others wanted some form of follow-up after the move. One respondent stated that just because they had left the red-zone, it didn't mean that their life was suddenly fixed and would improve. Indeed, literature suggests that the full effects of loss of home and social resources after disaster are not evident until years after the event itself (Bland et al., 1996).

During the formative phases of this project the extent of support available to red-zone residents was investigated. CERA initially released a red-zone decision guide for residents, available online. It suggested a range of phone numbers and support services should red-zone residents require them. However it concluded with the recommendation that red-zone residents should seek professional support should they require it (i.e. private counselling services). Most respondents were unaware of this resource, and of those who were there appeared to be a lack of trust in CERA advice (considering it was central government that had forcibly acquired their land). A number of charitable organisations had offered counselling services for quake affected residents, or small grants to cover the costs of storage while relocating, for example. However there appeared to be no specific services for residents searching for a new home, and certainly no services providing support or resources post-move.

The varying level of support for post-disaster movers is also notable in the international literature. In the aftermath of Hurricane Katrina, Peek (2012) describes that displaced refugees were often forced to rely on social networks for financial and housing support. Despite public welfare available for the majority of US citizens, being forcibly relocated out of New Orleans meant that most movers did not have the required certification or identification to receive this governmental support. As a result post-disaster relocatees were often not provided any form of housing financial or social support

services (Peek, 2012). Fernando (2010) describes a similar situation in Sri Lanka after the Boxing Day tsunami in 2004. Despite the government setting up an exclusion zone (which required residents to relocate) the government did not see its role extending past enforcing the exclusion deadline. Raju (2013) furthermore presents a similar situation in the relocation of fishing communities in Chennai, India, where the lack of community interaction in decision making led to poor support structures pre and post relocation.

In future, a more focused and integrated approach in providing support to post-disaster movers, especially those forcibly relocated, is recommended. Whilst some support was offered, it was often at times (i.e. before the Southshore red-zone decision) and in forms that often did not link with what residents needed most. The need exists for more effective dissemination of information and support from the organisations that are partially dictating the mobility of such populations (in this case, the government and insurance companies). Nevertheless, as this study suggests, government aid to such disaster victims may be treated with apprehension or not effectively utilised. Rather than imploring government to set up agencies to offer such support (for example, aid in understanding the property market, or resources to help the move itself), greater collaboration between central and local governments, as well as with third sector aid agencies, would be more effective. In Christchurch, forced relocatees were often unaware of the services available to them and there appears to be little information sharing between organisations. Relocatees thus relied principally on social connections to provide necessary resources. Relying on these connections was not always particularly effective. What has emerged in Christchurch are a number of third-sector organisations that exist to help red-zone residents by seeking to contest government action and perceived inaction. Early, effective collaboration between levels of government and third-sector/charitable organisations would enable a more effective resource base for forced relocatees.

Although I do not wish to explore my personal apprehensions, I believe that this lack of collaboration between government and third-sector organisations will result in relocatee distress in the future.

Whilst the results of this study highlight an increase in SWB in the majority of the sample post-move, I believe that these will decrease over time as the relief in leaving the red-zone diminishes. This is more likely to occur in the RAs and CSs, who exhibited stronger place attachment to the environment that was lost. The literature suggests that post-disaster victims may experience adverse mental health effects up to three years after the event (Bland et al., 1996). The change in environment, loss of social connections and feelings of place attachment associated with the shift in environment for respondents in this study may cause delayed adjustment periods.

Continuing Community and Resilience Practices

Communities have the potential to function effectively and adapt successfully in the aftermath of disasters. Norris et al. (2008) argue that community resilience emerges from four primary sets of adaptive capacities – economic development, social capital, communication, and community – that together provide a strategy for disaster readiness. To build resilience, communities must reduce risk and resource inequities, engage local people in mitigation, create organizational linkages, and boost and protect social supports (Norris et al., 2008). The ability to develop and maintain these resources and processes is difficult, however, especially when considering the mobility of red-zone residents.

In many ways, the support capacities that households develop whilst in a community are lost once relocation occurs. This occurs largely through the loss of social connections, which makes relocatees more vulnerable to the effects of the disaster and to future events. As a result, a local planning focus on developing and maintaining the community resilience practices and connections in the relocated populations is recommended. This would include providing facilities that enable social interaction (such as pubs, parks or community halls), spaces that preserve connection to place, and resources that preserve and embody the earthquake experience (such as places of remembrance in the red-zone).

Literature highlights that the social networks of relocatees are crucial in maintaining resilience post-move. When a disaster displaces entire communities, families and social networks are often severely disrupted (Li et al., 2010) and without social network resources in a new community, relocatees struggle to adjust (Lueck, 2011). It is also argued that post-disaster movers face numerous barriers to resilience in a new location, more so than a mover in a normal environment (Lueck, 2011). Peek (2012) stated that after Hurricane Katrina relocatees were unable to maintain former social connections, or even practice 'normal' behaviours in a new environment. As a result, these relocatee's experiences appear to be more traumatic and distressing than movers to environments that could maintain or replicate such relationships.

During the research process, the loss of community space and resources was discussed by a number of red-zone residents. 77% of households stated that they planned on returning to Southshore in the near future to reconnect with either the environment, a friend or family member (i.e. for a day trip). 48% of respondents had already returned in the period of moving and the second interview. Of those who did not wish to return to the neighbourhood (usually citing potential stressfulness in doing so), the majority stated that they were planning on meeting someone from the neighbourhood in another part of Christchurch. Maintaining these connections to people or place is vitally important to the participants in this study. A number of respondents described feelings of social isolation, loss of place and loss of community after relocating. Of those who moved closer to the red-zone deadline, some noted feelings of social isolation occurred even before the relocation had been completed. Their feelings of isolation and loss were generally associated with poorer post-disaster experiences and lower levels of SWB. Whilst strong feelings of place attachment were often related to poor relocating experiences, especially in the CSs group, it is important to enable connection to previous social and environmental resources.

It is therefore up to local government or community groups to facilitate and promote such practices. In the context for this study the Southshore Residents Association has attempted to promote such

resilience building activities. A number of networking activities have occurred, bringing together relocated red-zone residents and those in the green zone. Attempts to develop a place of 'remembrance' for the former red-zone residents were met with initial disapproval by red-zone residents, however. Red-zone residents felt that those left in the green zone were planning the future of Southshore, only recently after they had left. However there appears to be little attempt from central or local government to facilitate resilience building practices *specifically* in relocated populations. A number of social events occurred in the aftermath of the disaster, such as the Picnic in the Parks, but this tended to exist within the central and western city precincts. The creation of 'earthquake remembrance' spaces in the central city marked an attempt to highlight the resilience of Cantabrians, however there were no known activities/resources available specifically for relocated populations. Simply assuming that movement within a city allows for the maintaining of resilient practices is optimistic and flawed. There is a need in Christchurch for facilities that enable the reconnection of forced relocatees to Southshore and the feeling of 'community' they lost when relocating.

Encouraging Local Residential Mobility after Disaster

Local residential mobility refers to relocating within the same urban area. The idea of a 'positive' form of mobility after disaster is hard to define. In one of the earliest studies into disaster recovery, Haas, Kates & Bowden (1977) suggested that "disaster recovery is ordered, knowable and predictable" (pg. 16). Inherent in this was the idea that disaster affected populations always travel back to their origin site, irrespective of the damage. It now should not appear surprising that this is contestable and often not the case. A number of studies have highlighted that disaster recovery is generally disorganised, and relocatee's behaviours are not predictable (for example see, Mileti & Passerini, 1996). Disaster experience, connection to place and access to fluid capital ultimately have

a relationship with patterns of residential relocation. In the short-term, access to amenities and location of social connections are major drivers of mobility.

The encouragement of intra-urban and local residential mobility is therefore recommended with caution. Nevertheless, it is argued that there are potential benefits in encouraging such movement. Norris et al. (2002) state that disaster movers who stay involved in the recovery process are more resilient, and less likely to lose social resources. Berke, Kartez & Wenger (1993) also highlight that disaster victims who participate in the recovery process are more likely to describe positive disaster experiences. Both of these studies highlight the potential benefits in relocation within the disaster area. Furthermore Goldhaber, Houts & DiSabelle (1979) stated that populations that moved within, or into, the Three Mile Island environment (that had suffered a previous nuclear accident) were more likely to positively view the incident than those who relocated to other environments. This may be linked to those who did not move maintaining social connections that relocatees lost. The concept of movers who 'stick it out' by relocating with the same city, or suburb, appears to both directly increase involvement in the rebuild period and improve long term perception of the event itself.

This does not mean that relocatees, or even forced relocatees, should be persuaded to move in an intra-urban manner (i.e. relocating within the same urban area). As the results of this study highlight, a number of post-disaster movers prefer to leave the disaster environment. For these movers there appears to be strong negative feelings attached with the disaster environment, and mobility offers a form of escape or respite. Whilst not a characteristic of any one group in the typology I introduced, some relocatees saw little point in remaining attached to an environment that they considered as defunct and broken. Intra-urban relocation for these movers may only have reinforced feelings of negativity and extended the post-disaster recovery/adaptation process.

It is therefore recommended that local government use their capacity to inform disaster populations of the benefits of relocating within the local environment (in this case, Christchurch). It must be noted that this may not always be possible, especially if there is limited housing available. A number of respondents in the study noted the willingness and desire to help with the rebuild process, and discussed at length their views for a 'new Christchurch'. In a way these views represented a positive, forward-thinking mind-set. For the movers who expressed a connection to resources within Southshore or Christchurch, such intra-urban or local movement has the capacity to improve their perception of the event itself. Such a move would enable, and did enable for those who moved as such, the engagement of local people in mitigation and recovery and protect valuable social supports, as defined by Norris et al. (2008).

Future Research

This study goes some way in highlighting the roles of various organisations and processes (such as the property market) in determining mobility patterns of red-zone residents in the Christchurch context. In doing so it highlights the importance of context in understanding human behaviour, and in particular the difficulty in comparing themes with international literature. Nevertheless future research is required in order to understand the long term effects of such mobility. Given the fact that post-disaster stressors and adaption periods become clearer over time, there is no apparent substitute for in depth longitudinal studies. This is a major limitation of this project. While the length of time available for this study allowed for multiple points of data measurement, it does not allow for in depth assumptions about the effects of differing mobility patterns. Although the research allowed for a typology of movers to be developed, I am certain that opinions and perceptions of disaster experience will change as the different movers encounter various stress and adjustment periods.

Concluding Remarks

I wish to conclude by way of quoting a particularly poignant comment by a respondent, and by admitting my own personal expectations of this a study. Having lost our family home in the Avonside red-zone I came into this study with, what I believed to be, an understanding of the 'red-zone experience'. In many ways I felt that my own experience could, in some way, relate to the stories and difficulties experienced by such post-disaster movers. This proved to be naïve and incorrect. As the results of this study show, a number of variables dictate both mobility patterns and the disaster experience itself. I could not have imagined the extent to which the delayed red-zone decision in Southshore and insurance difficulties, amongst other factors, would affect mobility patterns. Subconsciously it is difficult not to compare such experiences against your own, and I found it hard to disentangle my own subjective interpretations of participant's experiences from. Nevertheless, one participant, in describing the 'red zone' experience explored many of the themes central to this thesis. She stated,

> You ask me what it's like for red-zoners … but I don't think I can answer that. The zoning decision, the moving bit, the settling into a new place and a new home … it's different for everybody. I know that's probably not the answer you want for your research, but I think … I think for some people it was the best outcome for them after the earthquake. They got the chance to up and leave, go somewhere else and start afresh. But for others … well for others it was the worst outcome. Not being paid out enough … losing your home, your friends, your neighbours … something you might have sunk years of work and money into … gone and you don't have a say in it.
>
> But I guess … well you know, the red-zoners are united in one thing though, and I think it's the feeling of loss. We've all lost something, our homes at the very least … for some people that means more than others of course … but no matter where people have gone, whatever they decide to do with their lives, we've all lost something, you know? In that regards, it's kinda tragic. But then again, that's life, you know?

In many ways these comments summarise the range of experiences discussed by red-zone residents of Southshore. Some viewed the red-zone decision and associated pay-out as a largely negative phenomenon, whilst others viewed it as a form of opportunity. However what was consistent in all the households that were involved with this project is the feeling of loss when having to relocate. Moving was often an attempt to recover or re-create aspects of the lost Southshore environment or to limit the feelings of loss itself (for example, through the maintaining of social connections).

Finally, results from this study and other international literature suggest that structures heavily influence human behaviour in post-disaster environments. While the households in the four different groups/types all expressed agency in different ways – arguing with the CERA, forming local support networks, and contesting insurance claims – the particular forms of movement and experiences within these groups were inevitably shaped by wider social forces and organisations. A system must be developed that assists forced movers to utilise needed resources, support and information before, during and post relocation. We cannot simply assume that reimbursing affected populations for their property will enable disaster recovery, and post-disaster resilience. With an understanding of the effects that different organisations and wider processes (such as the housing market) have, the challenge becomes translating this into reduced adjustment periods in the new environment.

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Appendices

Appendix A: Residential Red-Zone Fact Sheet

23 June 2011

Residential Red Zone Fact Sheet

Geotechnical engineers Tonkin & Taylor have assessed and mapped residential land damage caused by the Canterbury earthquakes of 2010 and 2011.

Some land in the Christchurch City and Waimakariri District areas has been so badly damaged by the earthquakes since 4 September 2010 it is unlikely it can be rebuilt on for a considerable period of time. Engineers have mapped these areas and categorised them as residential red zone.

These properties are located in:

- the east of Christchurch (along the Avon and in related areas usually associated with waterways or former waterways);
- in the north-east of Christchurch (e.g. Brooklands); and
- in the beach area of Waimakariri District (i.e. Kairaki Beach).

There are currently about 5000 properties in the Christchurch City Council area and around 100 properties in the Waimakariri District Council area in the residential red zone.

The criteria for defining areas as residential red zone are:

- There is significant and extensive area wide land damage;
- Most buildings are uneconomic to repair
- There is a high risk of further damage to land and buildings from low-levels of shaking; and
- The success of engineering solutions would be uncertain and uneconomic; and
- Any repair would be disruptive and take a considerable period of time.

In the residential red zone, area-wide land damage is so extensive there is an increased likelihood of further damage due to liquefaction and lateral spreading from the ongoing series of aftershocks. The 5.7 and 6.3 magnitude earthquakes on 13 June 2011 demonstrated this.

Homeowners in the residential red zone face lengthy disruption that could go on for years. Such wide scale land repair would take a considerable period of time and result in ongoing social dislocation, which would have major impacts on schooling, transport and employment for whole communities.

The Government has moved to ensure residents in these zones have the option to get on with their lives as quickly as possible.

23 June 2011

What does this mean for me?

For people who owned property with insurance in the residential red zones on 3 September 2010 there will be two options:

- the Crown makes an offer of purchase for the entire property at current rating value (less any built property insurance payments already made), and assumes all the insurance claims other than contents; or
- the Crown makes an offer of purchase for the land only, and homeowners can continue to deal with their own insurer about their homes.

The varying degrees of damage to the houses and land in the residential red zone mean it will take more time to develop these offers.

The Government hopes to be able to come back to residents in the residential red zone with an offer of purchase within the next eight weeks – by mid-August 2011.

Residents will then have nine months from that date to consider the offer of purchase.

What if I want to move out of my house now?

In the meantime, if residents wish to leave their badly damaged homes in the red zone they should talk to their insurers about accessing any unused portion of their temporary accommodation allowances immediately.

The Crown also has temporary accommodation assistance available, so this means people in the red zone have the choice not to live in substandard conditions. Visit www.quakeaccommodation.govt.nz for more information.

Where can I get more information?

Residents can visit the www.landcheck.org.nz website and enter their address to find out what zone their property has been mapped into.

Residents can also contact the Government helpline on 0800 779 997 if they are unable to access the website or if they want more information.

Further information – including a Q&A for homeowners – is available as part of the media pack and on the Canterbury Earthquake Recovery Authority (CERA)'s website www.cera.govt.nz

Appendix B: Letter from CERA informing residents of red-zone decision **p.1 of 2**

CERA
Canterbury Earthquake Recovery Authority

18 May 2012

[redacted]
Southshore
Christchurch 8062

Dear [redacted]

Re: Your property at [redacted]

This letter is to confirm your property at the above address has been rezoned from the orange zone to the residential red zone.

I appreciate it has been incredibly difficult while you have waited for a decision about your land. Rezoning the remaining orange areas has been extremely complex and I hope this announcement provides you with some certainty and will help you to plan your future.

The decision to rezone your property into the residential red zone has been made after extensive area-wide geotechnical investigations and assessments. Rebuilding is not feasible for a considerable period of time, and remediating the land to a consentable standard would be expensive and highly disruptive.

The Government is offering to purchase those properties with insurance in the residential red zone to allow those homeowners to plan for their future.

The Government is offering two options:

- The Crown makes an offer of purchase for your property at the capital rating value as at 3 September 2010 (less any property insurance payments already made) and assumes all the insurance claims other than contents, or

- The Crown makes an offer of purchase for your property at the land rating value as at 3 September 2010 (less any EQC payments already made for land damage) ,and you can continue to deal with EQC and your insurer for any claims for damage to your home.

Canterbury Earthquake Recovery Authority (CERA), Private Bag 4999, Christchurch 8140, New Zealand
Ph: 0800 RING CERA (0800 7464 2372) Fax: 03 963 6382 Website: www.cera.govt.nz Email:info@cera.govt.nz

In order to make these offers we need information about your property and your insurance details from the Earthquake Commission (EQC) and your private insurer. They need your consent to share this information with us.

Please complete the enclosed consent form and return it in the reply paid envelope. If you need more time to get back to us because you want to seek advice, please don't worry as it will just mean our offer to you will be delayed slightly.

By signing and returning this consent form, you are only giving us the authority to prepare an offer for your consideration. You are **not** agreeing to accept any offer the Government makes you in the future.

When you receive the Crown offer, you will have 12 months from the date on your offer letter or until 31 May 2013, whichever comes first, to accept the offer by returning a signed Agreement for Sale and Purchase to the Crown via your lawyer. The last date you can choose to settle the sale of your property with the Crown is 30 June 2013.

While you wait for your offer from the Government, there are some things that you might like to do which will help streamline the offer and acceptance process.

- Keep in touch with your insurer to understand where your claim is up to. You will need to keep paying for your insurance cover but talk to your insurer about your options.
- If you have a mortgage, talk to your bank or other lender so they understand your situation and can discuss future lending options.

A community meeting for Southshore red zone residents will be held in the City East Church, 118 Shortland Street, Wainoni on Monday 21 May from 6.30pm.

You can also find more information on our website www.cera.govt.nz or by calling 0800 RING CERA (0800 7464 2372) between 8am and 5pm weekdays.

Yours sincerely

Roger Sutton.

Roger Sutton
Chief Executive

CERA
Canterbury Earthquake Recovery Authority

[date]

[name]
[address]
[address]
[address]

Dear [name of property owner]

Offer to purchase your property

Thank you for returning your Residential Red Zone Consent Form. Based on that information I am now in a position, on behalf of the Crown, to offer to purchase your property at:

[insert property address]
[insert QPID number and pin]
[insert CT number]
(your Property).

This letter is my purchase offer. Please also read carefully the enclosed offer information booklet as it contains important information to help explain this offer.

The following two options are available to you if you want to accept the offer.

Option 1: The purchase price for your property will be the most recent rating valuation of your land, buildings and other improvements less any deductions. Our records show this valuation for your property is **[$insert total RV].** Details of the type of deductions that might apply are set out in the offer information booklet.

Under Option 1, the Crown will take over your insurance and EQC claims for damage to your house as well as your EQC claims for damage to your land as soon as you sign the sale and purchase agreement. The Crown will **not** take over any insurance and EQC contents claims you may have made or any personal insurance benefits (such as rental allowances, stress payments etc) which may be available to you under your private insurance policy. You should keep dealing with EQC and your private insurer in relation to any contents or personal insurance benefits claims not yet paid out.

While everyone's situation will differ, generally speaking, if your house has only minor damage, Option 1 may be more suitable.

Canterbury Earthquake Recovery Authority (CERA), Private Bag 4999, Christchurch 8140, New Zealand
Ph: 0800 RING CERA (0800 7464 2372) Fax: 03 963 6382 Email: info@cera.govt.nz
Website: www.cera.govt.nz

Option 2: The purchase price of your property will be the higher of either:

The most recent rating valuation of your land only less any deductions. Our records show this valuation for the land is **[$insert land RV].** Details of the type of deductions that might apply under Option 2 are set out in the offer information booklet; or

The amount that the Crown eventually settles with EQC for your land claim, less any deductions.

Under Option 2, when you sign the sale and purchase agreement, CERA will take over your EQC claim relating to land damage only. You will continue to deal directly with EQC and your house insurer for all other claims.

You may wish to choose Option 2 if you consider that your house insurance would result in you being paid more for your building and improvements than the rating valuation. While everyone's situation will differ, generally speaking, if your house is a total loss and you have full replacement cover, Option 2 may be more suitable.

You can **only** seek an adjustment to the purchase price where:

The most recent rating valuation is based on an incorrect land area, an incorrect floor area for your house and/or any additional insured buildings; or

You have received a code compliance certificate for consented building work undertaken after the rating valuation and that work increased the floor area of your house (or added additional insured buildings).

If you believe that one of the above categories applies to you, you should advise your lawyer so he or she can notify CERA.

Before responding to this offer, please discuss your position with a lawyer, your insurer, and any lender who has a mortgage over your property. If you accept the offer, the Crown will meet **50 percent** of the costs of your legal advice, up to a maximum contribution of $750 +GST for Option 1 or $500 +GST for Option 2.

You may also wish to talk with a financial adviser. The Christchurch Earthquake Appeal Fund has supported the Commission for Financial Literacy and Retirement Income to ensure information and advice is available to help you make your financial decisions. For more details please visit the 'Canterbury residents' section of www.sorted.org.nz.

You have up to twelve months from the date of this letter or until 31 May 2013, whichever comes first, to seek advice and decide whether to accept the offer. Once you are certain you fully understand the offer and have decided to accept one of the two options, your lawyer will prepare and submit the Sale and Purchase Agreement. Should you wish to view the agreement prior to meeting your lawyer, it can be downloaded from www.cera.govt.nz. CERA will then deal directly with your lawyer to finalise the agreement.

If you do not submit an agreement within 12 months from the date of this letter or by 31 May 2013, whichever comes first, the Crown's offer to purchase your property will expire and it will no longer be available for you to accept.

There will be some flexibility around setting a settlement date (the date you will receive the final payment and must vacate the property), with date options extending out as far as 30 June 2013.

To enable you to plan your future as soon as possible, a deposit can be paid if you have a settlement date that is more than six weeks after the agreement is signed. This deposit will be the lesser of 50 percent of the purchase price stated on the front page of the agreement for the sale of your property or $50,000. No deposit will be paid if you want to settle within six weeks of signing your agreement.

I know that you may have questions. The enclosed information booklet will answer many of those questions. The booklet also includes a step-by-step diagram of the offer and sale process and a directory of some key support services you may wish to use.

If you would like more information:

For questions relating to consent forms and/or the Crown offer process, please phone 0800 RING CERA (0800 7464 2372) 8am to 5pm weekdays.

For general enquiries or if you want to make face-to-face contact with agencies at the CERA Earthquake Assistance Centre at the Avondale Golf Club, please call 0800 7464 2372. The Centre is open weekdays. Hours may change subject to demand. Or, you can visit the Kaiapoi Earthquake Hub at 11 Cass Street, Darnley Square. The Hub is open from 8.30am to 4.30pm weekdays, and 5pm to 6.30pm on Thursday night by appointment only. Call 0800 NEW 000 (0800 639 000).

Visit the CERA website www.cera.govt.nz.

Yours sincerely

Roger Sutton
Chief Executive

SR

RELOCATION AFTER THE CANTERBURY EARTHQUAKES:
A STUDY OF RED-ZONED RESIDENTS

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Pre-discussion Survey

This short survey is comprised of four sections. It is designed to help you think about your movement after the Canterbury earthquakes, and find out a little bit about your earthquake experience. As well as this the last section enquires about some basic demographic details.

Please note that we will most likely discuss the answers you supply here in the discussion that follows.

We understand that the relocation process is complicated in different ways for different people, and at times it may appear confusing what the questions in this survey are asking. Therefore, please feel free to seek clarification about any of the questions, or raise any concerns with the researcher, who will be with you while you fill out this questionnaire.

Section One

Please use the following page to describe the places you **have resided in** since the September 2010 earthquake, other than your current residence. For the purpose of this question please only consider places in which you have spent **7 or more nights.**

Location (region, city and suburb if applicable):

Type of residence (e.g. hotel, renting situation, family house):

Duration of stay:

Reason for leaving original residence:

Reason for choosing this place of residence:

Location (region, city and suburb if applicable):

Type of residence (e.g. hotel, renting situation, family house):

Duration of stay:

Reason for leaving previous residence:

Reason for choosing this place of residence:

Location (region, city and suburb if applicable):

Type of residence (e.g. hotel, renting situation, family house):

Duration of stay:

Reason for leaving previous residence:

Reason for choosing this place of residence:

Location (region, city and suburb if applicable):

Type of residence (e.g. hotel, renting situation, family house):

Duration of stay:

Reason for leaving previous residence:

Reason for choosing this place of residence:

Section Two

The following section attempts to briefly look at why you choose to live in particular places.

Please consider the following in regards to **how important** these factors were in choosing where you live. 'Original Residence' is where you were living at the time of the earthquakes. 'New residence' is where you will be moving to, or if you have already moved, where you live now (please ask the researcher if you have any questions about this).

1. The residence is close to friends

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

2. The residence is close to family

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

3. The residence is close to amenities I value (for example, schools, shops or the beach)

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

4. The residence is affordable/good value

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

5. The residence appears safe (both from natural disasters and crime)

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

6. The residence is close to work

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

7. I am familiar with the area/have past experiences in the area

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

8. I know people in, or around, the area

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

9. I saw potential for property values to increase in the future

Original Residence:	Not Important	1	2	3	4	5	6	Very Important
New Residence:	Not Important	1	2	3	4	5	6	Very Important

10. The residence is in close proximity to people with similar interests to me (for example, cultural or religious beliefs, a 'surfing' community, or a community that has a strong focus on gardening)

Original Residence: Not Important 1 2 3 4 5 6 Very Important

New Residence: Not Important 1 2 3 4 5 6 Very Important

11. The residence is close to transport routes/public transportation

Original Residence: Not Important 1 2 3 4 5 6 Very Important

New Residence: Not Important 1 2 3 4 5 6 Very Important

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't Know
I plan to remain a resident of this community for a number of years						
I regularly stop and talk with people in my community						
I think I agree with most people in my community about what is important in life						
I would be willing to work together with others on something to improve my community						
I feel like I belong to this community						
I am very attached to the local environment and landscape						

Section Three

Please consider and then circle the following in regards to your choice of your **new residence** (i.e. where you will be moving to):

I had little choice about where to live	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I could not afford to live where I wanted	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I felt like the decision about where to move to was out of my control	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
If I had the choice my new residence would be closer to my old one	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I wish my new residence was further away from my old one	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I was looking to move to the area anyway	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I am happy with the location of my new residence	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
It was difficult to find a suitable place because of the zoning process	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly

Please list some of the factors which have influenced the **time** it has taken to move to Place 2 (i.e. why has the move not been made sooner, or alternatively, further down the track):

1. _____

2. _____

3. _____

4. _____

The following question is intended to help us understand the range of peoples experiences in Southshore at the moment. Please tick the box which is closest to how you have been feeling over the last two weeks:

Over the last two weeks	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
I have felt cheerful and in good spirits						
I have felt calm and relaxed						
I have felt active and vigorous						
I woke up feeling fresh and rested						
My daily life has been filled with things that interest me						

Section Four

- I am (please tick): [ ] Male [ ] Female

- Please tick the appropriate box in regards to your age:
  [ ] 10-19 [ ] 20-29 [ ] 30-39 [ ] 40-49 [ ] 50-59 [ ] 60-69 [ ] 70+

- Please identify your ethnic background:

  [ ] European (including New Zealand European)
  [ ] Mäori
  [ ] Pacific Peoples
  [ ] Asian
  [ ] Middle Eastern/Latin American/African
  [ ] Other Ethnicity (please specify):_____

- Please describe the nature of your household:

  [ ] Sole Occupant
  [ ] Single with children
  [ ] Couple
  [ ] Couple with children
  [ ] Group of unrelated people (e.g. a flatting situation)
  [ ] Other (please specify): _____

- Are you currently…?
  [ ] Employed for wages
  [ ] Self-employed
  [ ] Out of work and looking for work
  [ ] Out of work but not currently looking for work
  [ ] A student
  [ ] Retired
  [ ] Unable to work
  [ ] Other (please specify): _____

- What is your total household income?

- [ ] Less than $10,000
  [ ] $10,000 to $19,999

[ ] $20,000 to $29,999
[ ] $30,000 to $39,999
[ ] $40,000 to $49,999
[ ] $50,000 to $59,999
[ ] $60,000 to $69,999
[ ] $70,000 to $79,999
[ ] $80,000 to $89,999
[ ] $90,000 to $99,999
[ ] $100,000 to $149,999
[ ] $150,000 or more

- How long have you lived at your current address (i.e. your place of residence at the time of the earthquake)?: _____

- At the time of the September earthquake was your house (i.e. the red zoned one)….?
  [ ] Owned by you or someone in the household with a mortgage or loan
  [ ] Owned by you or someone in the household free and clear (without a mortgage or loan)
  [ ] Rented
  [ ] Occupied without payment of cash rent

Thank-you for taking the time to fill out this questionnaire. Please hand this completed questionnaire back to the researcher, who will begin to discuss how the next part of the discussion will take place. If you have any questions or concerns at this, or any point please do not hesitate to ask.

Contact Details

The details you supply here are used solely for the purpose to contact you for the second interview. Under no circumstances will they be published, or used in any way during the research process (please refer to the attached consent and information forms).

Name:

Current Address:

Future Address (if applicable/known):

Expected Time of Move (Months):

Phone (most contactable number):

Phone (alternative number):

Email:

Please circle how you would prefer to conduct the second interview: In person Phone

Do you wish to receive a copy of the final results? Yes No

University of Canterbury Red Zone Study: Interview Two

1. Have you moved out of your red-zone property? **YES** **NO**
2. If yes, how long have you been in your current property? _____
3. If no, when do you anticipate moving out? _____
4. If you could use three words to describe the **moving process**, what would they be?

   _____ _____ _____

5. If you could three words to describe how it feels now you are in a new home, what would they be?

   _____ _____ _____

6. Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks.

Over the last two weeks	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
I have felt cheerful and in good spirits						
I have felt calm and relaxed						
I have felt active and vigorous						
I woke up feeling fresh and rested						
My daily life has been filled with things that interest me						

Please consider the following in regards to your **new residence**:

I now feel a greater sense of safety	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I feel like the earthquakes are in the past	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I moved out of the red-zone on the date that I had planned	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
The move was less stressful than I had imagined	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I felt like the moving process happened within my control	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I still feel a connection to Southshore and my previous community	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
*I am happy with the **location** of my new house*	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly
I'm happy with my new property	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Agree Strongly

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2012/163

23 November 2012

Simon Dickinson
Department of Geography
UNIVERSITY OF CANTERBURY

Dear Simon

The Human Ethics Committee advises that your research proposal "Relocation after the Canterbury earthquakes: a study of red-zone residents" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 15 November 2012.

Best wishes for your project.

Yours sincerely

Lindsey MacDonald
Chair
University of Canterbury Human Ethics Committee

Interview One: Discussion Points and Questions

1. Ok so let's build upon section 1 and go right back to the beginning of the whole earthquake process. Could you explain to me where you have lived since the earthquake, and why you moved from place to place. So you started off in …..?

2. If we take a look at Section 2 here it looks as though your reasons for choosing to live in particular places has/has not changed. What would you describe as the main reasons for choosing your original place? What about the place you are planning on moving to, what would be the top reasons for moving there?

3. I'm quite interested to know why you have not made the move sooner, or perhaps further down the track. What were the reasons behind the timing of your move? Was it a matter of waiting until the land had been zoned? Or were there other factors in play too?

4. The project is looking at the movement of people, not only in regards to where they live, but how they move day to day. Does the earthquake affect you daily movement at the moment? What about if we look further back, closer to the earthquakes?

5. A couple of more general questions (not in order, use in appropriate time in conversation):

    - If not covered: Why did you move to Southshore initially?

    - Have spent ___ (time period) here now have these values changed?

    - Are you happy with the zoning outcome of your home?

    - Have you considered leaving Christchurch altogether? Why/why not?

    - In a hypothetical scenario, what changes would have to be made to make you stay in the Southshore?

    - If you could take **anything** with you to your new residence what would it be? This could be anything, for example the beach, the school, the trees even.

    - Is home, for you, a physical place or more of a connection to a certain area or community? (find a better way to word)

    - How long are you planning on spending in your new residence? (i.e. hinting at what purpose the home serves, perhaps an opportunity to downsize and retire?)

- How long were you planning on staying in Place 1?

- How would you describe the relocation process?

- Do you think we, or the council/government/CERA etc, have any lessons to learn form the whole process?

- In regards to this what would be the top three recommendations you would make to policy makers/decision makers?

- Will you consider moving back to the area in the future? Why/why not?

- Some view being red-zoned as an opportunity of sorts I guess, do you agree or disagree with this view?

6. How would you describe your connection to (a) this house and (b) to Southshore as a place? [alternatively, if that doesn't elicit much: What do this house and Southshore as a place mean to you?]

7. In general, how would you describe the experience of red zoned residents in Southshore? [i.e. what has it been like for them]

8. In general, how would you describe the experience of TC3 residents in Southshore? [i.e. what has it been like for them]

9. How will moving out affect your connections to Southshore as a place? What do you think that will be like?

Interview Two: Discussions Points and Questions

1. How are you/how have thing's been going?
2. Establish where they are at: have you moved yet? Are you in the process of moving?
3. Could you explain a bit about the moving process for me? How was it? Did it all go to plan? Did you leave when you were anticipating?
4. If the participant had not chosen the property at first interview, how did you chose this place? Could you explore how you went about trying to find this place?
5. Looking back at this whole earthquake process, how much, or at what points did you feel in control? What other groups/processes participated in you being where you are today?
6. Could you explore how you feel today? Has the move out of the red-zone helped your recovery process or allowed you to move on? Have your feelings changed at all as a result of moving?
7. On a side note, we are interested to know if the earthquake has created any opportunities for you…
8. Explore all the part two answers…ask for elaboration
9. How would you compare living in your new property to the property in Southshore?
10. Just to end the interview, and your involvement in the project, could you please summarize the past three years for me, up until today?

Well thank you for your time today [name]. It has been a real pleasure to talk to you today and earlier in the year. I know a lot of what we talked about is personal to you, so I really appreciate the time you have given me and the way you have been able to talk to me about this whole process.

I will make sure you receive a copy of the results and the final product, which should come out towards the end of this year. But if you have any question in the meantime, or even after you receive the results, please feel free to contact me. You have my email address, which is probably the easiest way to contact me as I am all round the place at the moment.

November 2012

RELOCATION AFTER THE CANTERBURY EARTHQUAKES: A STUDY OF RED-ZONED RESIDENTS

Information Form

Dear Resident/Householder

My name is Simon Dickinson, and I am currently completing a Masters degree in Human Geography at the University of Canterbury. As part of this degree, I am undertaking research into population mobility after the Canterbury earthquakes of 2010 and 2011.

The research seeks to examine the experiences of those who have been 'red-zoned' (i.e. required to relocate) as a result of the Canterbury earthquakes of 2010 and 2011. It focuses on moving home, and the factors that shape where people are moving to (e.g. availability and affordability of alternative housing, connections with places, proximity to work and schools)

I would be very grateful if you were willing to participate in this research, which is part of a larger collaboration between the Southshore Resident's Association and the University of Canterbury Geography Department (there is currently one other study underway in the suburb). The project would involve taking part in two interviews, preferably one before and one after your relocation. The first interview would begin with a short survey.

It is anticipated that each interview would take approximately 45 minutes, either in person or by phone. With your permission, I would like to record the interview, as this will help with understanding the different factors which are shaping people's experiences of relocation. After the interview, you will be sent a written transcription of what we discussed, which you will be able to review and correct any points of detail, as you wish.

You were selected to participate in this study because of your location within the study area, which is the suburb of Southshore.

Your help with this research is completely voluntary. You do not have to answer any questions you do not want to. You may also withdraw at any time, without any penalty, if you wish.

The initial survey contains a section asking for contact details. You are not required to provide these if you do not wish to. However, so that the second interview can be arranged, I ask that some form of contact information is supplied.

The information you provide will help deepen our understanding of relocation after events such as earthquakes. However you will not be individually identified in any publications or presentations arising from the research. Your name (if provided) will never be used in association with any individual quotations and potentially identifying details (such as household addresses) will never be used or made public.

All data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form. Only the members of the research team will have access to the original data. The data will be destroyed five years after the completion of the research.

Questions about this research can be directed to either me or my supervisor:

Dr. David Conradson, Department of Geography, University of Canterbury.

Phone: +64 (0)3 364-2987 Ext. 7917 or email: david.conradson@canterbury.ac.nz

This research has been reviewed *and* approved by the University of Canterbury Human Ethics Committee.

Thank you for taking the time to read this information sheet, which is yours to keep. I would also like to thank you for considering helping me with my research.

Simon Dickinson

University of Canterbury

Phone: +64 (0)3 364-2987 Ext.7931 or 027 420 7377

Email: simon.dickinson@pg.canterbury.ac.nz

RELOCATION AFTER THE CANTERBURY EARTHQUAKES:
A STUDY OF RED-ZONED RESIDENTS

Consent Form for Participants

I have read the project information sheet and have had the opportunity to ask questions.

I understand the general purpose of the project, that it is an independent study, and that my participation may contribute to a better understanding of post-disaster mobilities.

If I volunteer to take part in the research, I understand that I will be asked to:

- Partake in two semi-structured interviews/discussions (taking 45 minutes each).
- Complete a short survey at the beginning of the first discussion

I understand that my participation in the study is voluntary and that I may withdraw at any point. If I choose to withdraw all data I have provided will be withdrawn also. I understand that I am free to withhold my response to any particular question or questions.

I understand that the information I provide will be used to inform the study findings, but that I will not be individually identified in any publications or presentations arising from the research. My name (if supplied) will never be used in association with any individual quotations and potentially identifying details (such as my address) will never be used or made public. I understand that the discussions will be recorded for transcription, that I will receive a copy of the interview transcription and understand that I have the right to review and correct any points if I wish.

I understand that all data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form. Only the members of the research team will have access to the original data. The data will be destroyed five years after the completion of the research.

I will receive a copy of the interview transcription and understand that I have the right to review and correct any points if I wish

I understand that I can contact the lead researcher, using the supplied details, if I would like further information regarding the study. I understand that I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz) if I have any complaints about the research process. I understand this questionnaire has been reviewed and approved by the University of Canterbury Human Ethics.

_____ _____

Signature Name (Printed)

SUPPORT SERVICES

Please find below a number of relevant support services should you require them:

The Southshore Residents Association.

Contact: mail@ssra.org.nz or visit the website; http://ssra.org.nz/

The Southshore Residents Association website has collated earthquake information specific to the suburb of Southshore. As well as having access to relevant information, they provide updates to events and support people within the area.

Canterbury Earthquake Temporary Accommodation Service (CETAS)

CETAS provides a matching and placement service into appropriate temporary accommodation, financial assistance for additional accommodation costs and social wellbeing coordination for earthquake affected households.

Register online at www.quakeaccommodation.govt.nz or call 0800 673 227 for assistance.

Support and Counselling Services

If you are finding it hard to cope and need support you can ring the Quake Support and Counselling Services Helpline on 0800 777 846. When you call this helpline someone will talk with you and help you work out what kind of support you need. They can connect you with free counselling services or organisations that can offer you practical support, information or advice. A list of available social support services is also available online at the family services directory at www.familyservices.govt.nz.

Insurance Issues

Damage from the Canterbury Earthquake**s is unprecedented in New Zealand. This has led to high demand on the resources needed to inspect and evaluate insured properties.** If you are still having issues with your earthquake claims have a look at the information provided by the Insurance Ombudsman: http://www.consumeraffairs.govt.nz/news-1/consumer-alerts/christchurch-earthquake-insurer-issues-for-small-business-and-consumers